

THE IRON AGE

THURSDAY, JULY 17, 1890.

SPIRAL WELD TUBING.

When, after a period of experimenting, the manufacture of spiral weld tubing was first inaugurated at East Orange, N. J., by the Spiral Weld Tube Company, through the efforts of James C. Bayles, its president, *The Iron Age* described the plant and machinery in that stage of its development. The interval of years has been devoted to untiring efforts to overcome difficulties in details in the process of manufacture, efforts which have now been crowned with success. Firmly established as it is now, technically and com-

The skelp as cross welded is rolled up and passed to the pipe machine. One end is laid on the guide table, as shown in Figs. 2 and 3, and pushed to the feed rolls, which draw it in. This rate of feed is adjustable by means of a mechanism which will be explained further on. The skelp must be shaped into the form of a tube by coiling it up. It passes over the face of a stationary water-cooled anvil horn, which, being smaller than the pipe, does not in any respect serve as a mandrel. The face of this anvil horn is slightly curved, and the side next the furnace, which is always exposed to intense heat, is protected by a face of refractory material conforming to the curvature of the pipe. The formation

the anvil horn after passing the "crimper." At this point is located a small furnace, consisting simply of a mass of refractory material provided with a cavity, facing the refractory material of the anvil horn. Into this cavity enter one or more pipes supplying mingled air or gas under suitable pressure to form a blow pipe jet directed toward the edges of the sheet metal requiring welding. Fig. 3 shows clearly these blow pipes. One heats the upper or entering straight skelp, the other the lower skelp, or that which has already taken the form of the pipe. A light hammer, striking 320 blows per minute, welds the two edges together as they meet on the anvil. This hammer is

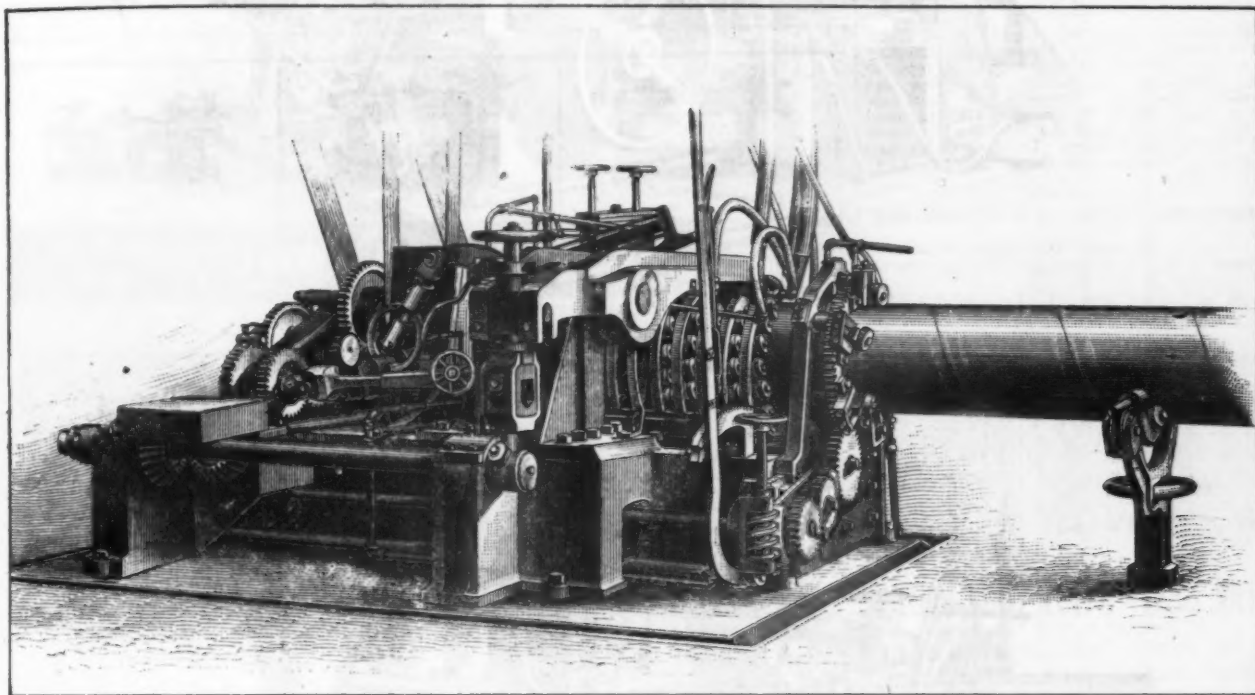


Fig. 1.—Side View.

SPIRAL WELD TUBE MACHINE.

mercially, this interesting and unique industry is worthy of attention and study.

PROCESS OF MANUFACTURE.

The steel rolled for the manufacture of spirally welded tubes is slit into bands 12 inches and 18 inches wide. Tubes of 6 inches to 10 inches in diameter are made from bands 12 inches wide; tubes of 12 inches and larger are made from bands 18 inches wide. There is no arbitrary relation between size of pipe and width of stock, but it is more convenient to have two widths than a greater number. The sheets are at present rolled about 20 feet long, and a band of this length will make from 5 to 12 feet of pipe, according to diameter. To make ribbons of sufficient length to form a continuous pipe from 20 to 30 feet long, the strips of skelp must be welded end to end—three or four being needed, as the case may be, to make a pipe of full length. This "cross welding" of the skelp is performed by automatic machinery, and is a simple and economical process. The cross welds as now made are flush and practically invisible. They offer no obstruction to the passage of the material through the pipe machine.

of the pipe is affected by a device known as the "crimper," which is an oscillating curved jaw, acting against the face of the anvil horn and bending to the required radius the steel skelp interposed between them. This "crimper" is clearly shown from the rear in Fig. 1. The stroke is adjustable through the means clearly shown in the drawing. It is driven by the gearing indicated, the motion coming from the main driving shaft through the intervention of a ratchet and pawl, indicated in Fig. 2.

The metal so bent is guided in a cylindrical path across and around the anvil to the furnace and to the opposite side of the anvil, to bring it adjacent to the heated edge of the straight skelp. To avoid the friction of the sheet against the "former block," anti-friction rollers are provided at frequent intervals, set parallel to the spiral seam of the pipe. The inclination of the friction rollers tends to pull the pipe forward as fast as it is produced. They are well shown in Fig. 1.

The two edges to be united by welding are the one straight edge of the skelp as it enters, and the outer edge of the coiled sheet as it comes upward around

shown in its upper position in Fig. 3, and is visible, though less distinctly, in Fig. 1, above the rock shaft of the "crimper." The hammer itself is driven by an independent belt; all the other motions coming from the main driving belt clearly shown in Fig. 2.

The skelp feeding mechanism is two-fold, being applied both to the skelp feeding rolls and to a set of rolls, which act upon the skelp after having passed the crimper. An important part of the machine is the mechanism, with the aid of which the feed is varied at the will of the operator, the guiding principle being to move the skelp along faster as soon as the welding temperature shows indications of rising too high, and to retard the feed when the skelp is not sufficiently hot to insure a thorough weld. The mechanism is controlled by the lever shown in Fig. 1, which has the position near the center of the lower portion of the back of Fig. 2. Through the arm and link there shown the feed block may be shifted. The same slotted feed block is connected by an arm with the small eccentric on the shaft, shown at the extreme right of the back of Fig. 3. The same feed block is coupled, by means

of a link, with a rocker mounted on the same shaft with a pawl wheel shown, and small gear wheels not shown, meshing on the one side with the wheel partly hidden by the belt. Through a heavy connecting rod, indicated in the drawing, is driven the gearing which operates the feed rolls on the skelp feed tables, there being two, one behind the other. The same gear wheel on the shaft of the pawl wheel drives, through gearing, a connecting rod

machinery is to pull the pipe out of the machine axially whenever a seam or other irregularity tends to make it stick. As shown in Figs. 1 and 3, the pipe is surrounded by a ring driven by the gearing, and provided with inclined rollers pressed elastically upon the exterior of the pipe. The ring is positively rotated at such a rate to the obliquity of the rollers that the pipe is drawn forward. The ring may be adjusted in size to the various sizes of pipe

than the practice developed in the manufacture of the spiral weld tube. The elements of success have been closely studied. They are great purity of the gas, with the highest practicable flame temperature and perfect combustion, and furthermore the absence in the steel of certain substances, notably sulphur. The Riverside Iron Works, of Wheeling, W. Va., who have had a good deal of experience in producing and using steel skelp for

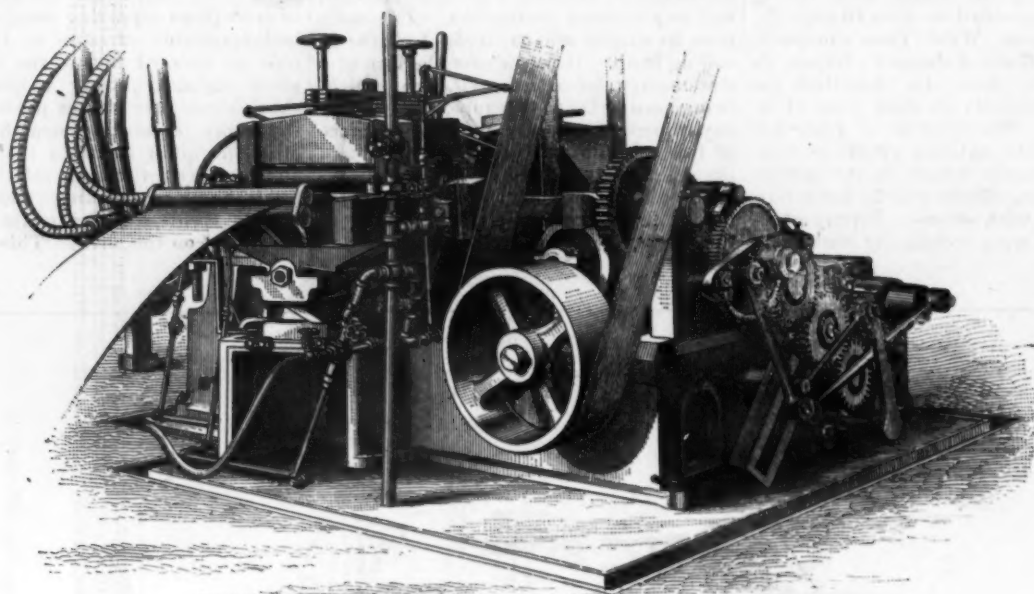


Fig. 2.—View of Feed Mechanism.

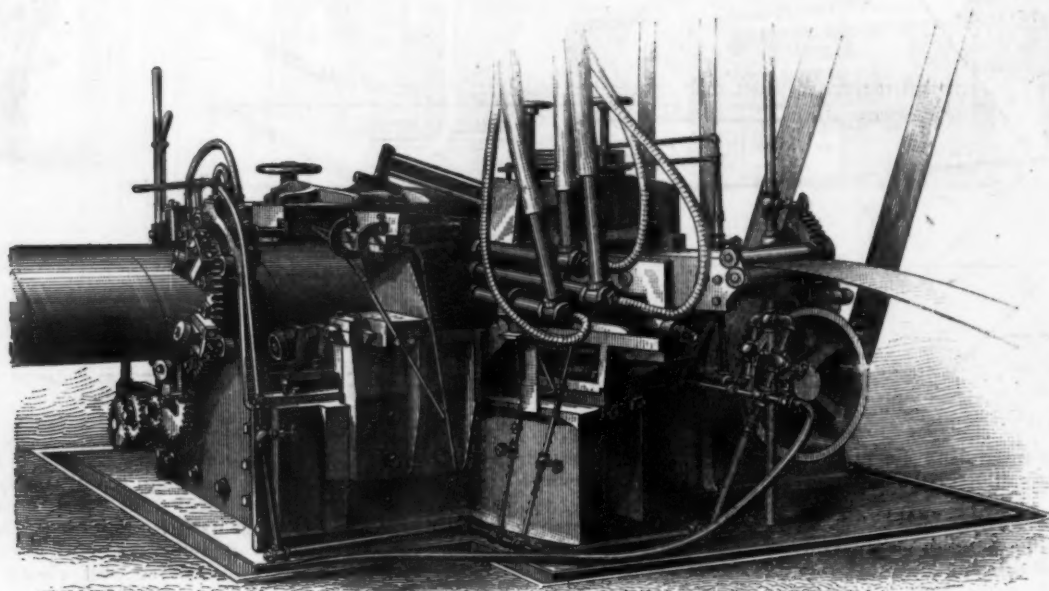


Fig. 3.—View of Furnace and Connections.

SPIRAL WELD TUBE MACHINE.

nearly horizontal, which is best seen in Fig. 1. This operates the feeding rolls acting upon the skelp in the former mold.

Returning again to Fig. 2 there will be noticed a train of three gear-wheels, which drive the second shaft from the floor, in Fig. 1, through which is operated the train of four wheels shown in the front of the machine in Fig. 1. They are all mounted on an arm, which, pivoting on the shaft, can be raised and lowered through the agency of a gear segment and the worm shown. The function of this part of the

made, and at the same time performs the important function of propelling the pipe when it has been so far finished that the end feeds cease to operate. The emerging pipe is sustained on supports, shown in Fig. 1, with trailing antifriction wheels which accommodate themselves to its double motion.

GAS WELDING.

No more complete answer could be presented to those who still have their doubts as to the possibility of welding soft steel,

ordinary pipe, manufacture the metal for the Spiral Weld Tube Company, but very satisfactory results have been had with other makes of Bessemer and open hearth steels, both domestic and foreign. In fact almost any steel low in carbon, low in sulphur and practically free from copper, will weld by this process.

FINISHING PROCESS.

After the pipe leaves the machine and its ends are trimmed square, which is done on a double trimming machine, obviating

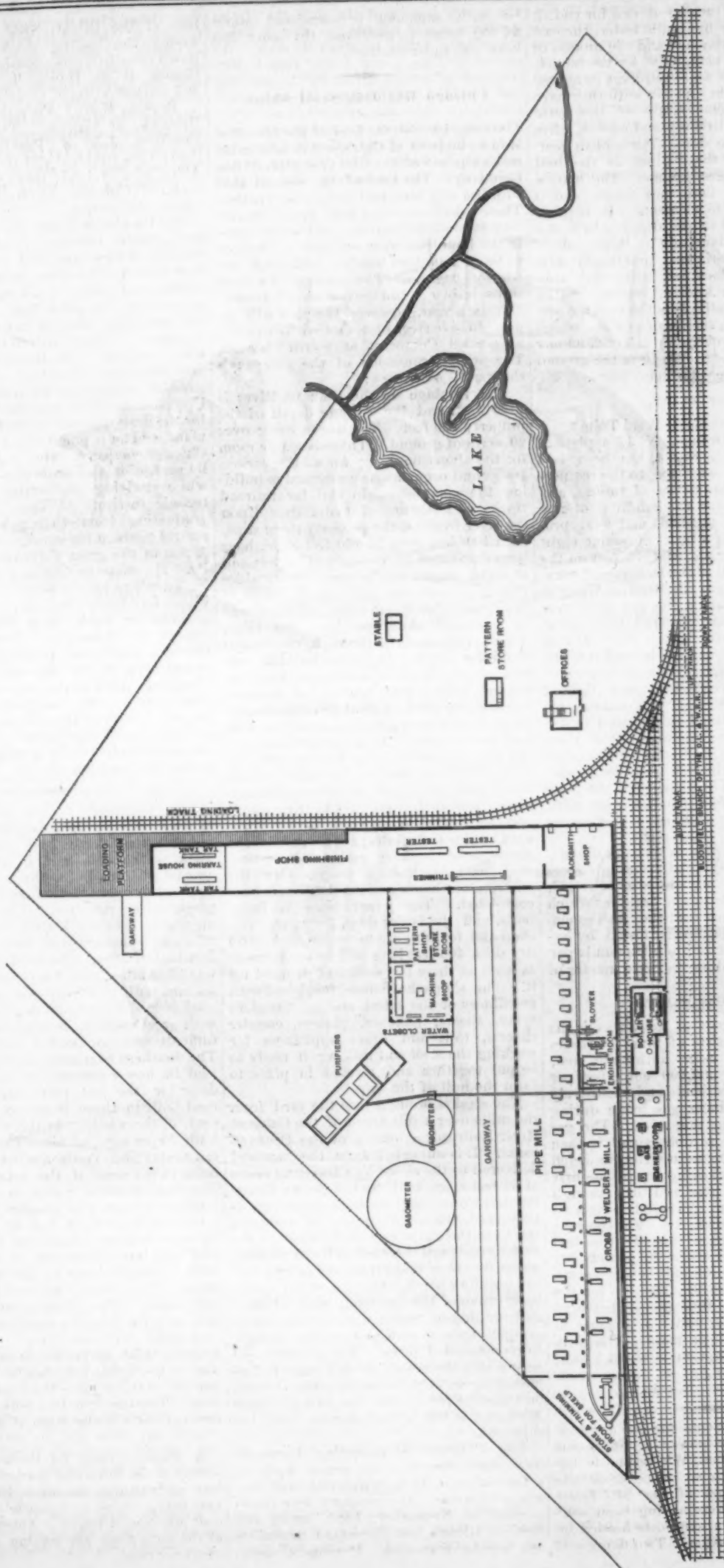


Fig. 4.—Plan of the Works of the Spiral Weld Tube Company, East Orange, N. J.

the necessity of turning it end for end, it is proved on the hydraulic tester, the cast couplings are attached and the process of manufacture is completed by the immersion of the pipe and couplings in melted asphalt, where they remain until they have acquired the temperature of the bath. They are then drained and cooled, when they are ready to ship. The asphalt coating applied to these pipes is the best known at the present time. The natural asphalt is very hard and tough, and is devoid of volatile elements. It requires to be maintained in the dipping bath at a temperature of about 400°. When cold it is tenacious, elastic and practically indestructible. It does not, under any conditions thus far known, become brittle, nor does it crumble like the coal tar preparations. With such a protection, which is not liable to accident or injury from any cause, a steel pipe should lie in the ground without impairment for many years.

THE PLANT.

The plant of the Spiral Weld Tube Company, at East Orange, N. J., a plan of which is shown in Fig. 4, has been laid out with special reference to the requirements of the manufacture of tubing, and is well arranged for the handling of raw materials, partly finished, and final product. It occupies a tract of about eight acres, with a frontage of 1172 feet on the Bloomfield branch of the Delaware, Lackawanna and Western Railroad. Along it are located, as shown, the gas producers and the boiler house, elevated tracks delivering the coal to the bins. With its axis parallel to the railroad a side track delivering the skelp alongside, lies the pipe mill proper, a well ventilated, well lighted structure, 400 x 83 feet. It contains ten cross welders, placed as indicated in the plan, and 27 pipe machines, 18 of them for manufacturing 6, 8 and 10-inch pipe, and nine for making 12 to 24-inch pipe, both inclusive. The capacity of the plant is rated at 7150 feet per ten-hour shift. The same building contains a neat engine room with electric light plant.

The untrimmed pipe as it leaves the machines is delivered axially through doors to the gangway, along which it is rolled, entering broadside to the building which contains the trimmer and the testing machines in which the pipe is tested by hydraulic pressure at 300 to 300 pounds per square inch, according to the diameter of the pipe.

THE GAS PLANT.

An interesting part of the works is the gas plant. It consists of four producers of special design, using anthracite coal, with a capacity of 300,000 cubic feet per day. Water gas is made and exclusively used, the air producer gas made during firing up not being employed. The gas is passed through scrubbers and is then delivered to three boxes in series, in which it is purified by allowing it to pass first through a layer of lime and then through two of iron oxide. A fourth box is always out for cleaning, &c. For the sake of economy in storage capacity the fuel gas is compressed to about 30 pounds per square inch. It is burned, however, at a pressure of 15 pounds. The air for the combustion of the fuel gas is delivered from a rotary blower under a pressure of 38 inches to a 16-inch main. The ratio of air to gas consumption is about 1 to 9, and about 30 cubic feet of gas are consumed to 1 lineal foot of weld.

An important scheme for the development of the water power of St. Louis River, at Fond du Lac, Wisconsin, is being carried through to success, all the rights and privileges of the St. Louis Water Power Company having been sold for \$1,000,000 to a syndicate headed by the Wilburs, of Boston. Two dams will

be built sufficient to command about 64,000 horse power, and the work has been put under contract.

Chicago Building Steel Ships.

On the 1st inst. the keel of the first steel ship to be built at Chicago was laid in the new shipyard of the Chicago Shipbuilding Company. The keel of the second steel ship has also been laid in its place ere this. These vessels are being built for the Minnesota Steamship Company, and will be used in the Lake Superior ore trade. They are to be of 2500 tons burden, with triple expansion engines. The material for these ships is being brought from Cleveland. Within a year, however, the yard will expect to use steel plates rolled by the Illinois Steel Company, at South Chicago. The present condition of the company's shipyard is as follows:

The frontage on the Calumet River is 1400 feet, and the average depth of the property 600 feet. The works cover over 20 acres of ground. There is ample room for the shops necessary for all the various trades and occupations concerned in building the complete ship and for railroad tracks and storage of materials. Upon the river front of the property three slips, each 400 feet long by 100 feet wide, have been excavated to a depth of 12 feet and at right angles to the river. Their sides will give berths for building six ships of the largest size at one time, and these will be launched sideways into the slips. Across the heads of the slips, convenient to all the berths, stretches a building 540 feet long by 75 wide, containing the boilers and shop engine, heating of furnaces for molding plates and angles, blacksmith shop, plate and angle shops, small machine and pattern shop. In the second story is the ship loft with a clear floor of 200 x 50 feet. Here the lines of the ships are laid down full size from models and dimensions furnished from the drafting office, and the wooden molds made, by which the steel angles and plates are shaped in the shops below. The mold loft, plate, angle and blacksmith shops, with the office, store house and stables, have been completed. The joiner shop is being built, and the boiler shop, forge, machine shop and foundry are to follow. A basin dry dock 400 feet long will be constructed as soon as there is a sufficient demand for it. The shops have been furnished with machinery of the latest and most modern types, shears, punches, planers, counter sinkers, rolls and other appliances for working the steel and making it ready to be put together and riveted in place to form the hull of the ship.

The steel is brought into the yard from the mills over a side-track of the Calumet River Railroad, a branch of the Pennsylvania. It is unloaded from the cars and delivered to the shops by a traveling crane of 62 feet span, built by the Brown Hoisting and Conveying Machine Company, of Cleveland, Ohio. A system of overhead tracks in the shops carries the steel to the various tools and there leaves it. A narrow-gauge line then takes it up and carries it to the building berth, where a steam cantilever crane of 120 feet span, built of steel and running on trestle work 30 feet above ground, delivers each plate, beam or angle to its appointed place. The engines will be put into the vessels by this crane before launching and the boilers by a steel derrick on the river front after launching. Lake Michigan is but a mile distant from the shipyard.

The Chicago Shipbuilding Company have thus entered upon actual work in shipbuilding. They will build steel vessels exclusively. The company were incorporated in November, 1889, under the laws of Illinois, but Cleveland capitalists are largely interested. Prominent mem-

bers of the Illinois Steel Company are among the leading stockholders. The board of directors consists of M. A. Hanna, H. H. Hanna, J. F. Parkhurst, and Luther Allen, of Cleveland, Ohio; W. L. Brown, Robert Forsythe and W. L. Babcock, of Chicago. The officers are: President, John F. Parkhurst, of Cleveland; vice-president and treasurer, Luther Allen, of Cleveland; manager, W. I. Babcock, of Chicago; secretary, Joseph H. Craig, of Chicago.

Mr. Parkhurst is now the vice-president and general manager of the Globe Iron Works, of Cleveland, and is probably the best known shipbuilder on the lakes. The ability and energy of his management are attested by the great fleet of more than 30 steel ships already turned out by his company. Luther Allen is treasurer of the same company. Mr. Babcock is a young man who has earned in a few years an enviable reputation for business ability. Upon his shoulders rests the responsibility for the designing and construction of the plant, and he is practically the head of the Chicago company. He is a naval architect by profession and made this his specialty while studying engineering in the polytechnic institute of Troy, N. Y. After graduating from that school he spent several years in the employ of John Roach & Son in the great shipyards at Chester, Pa. He came to Chicago from Buffalo, N. Y., where he was superintendent of the Union Dry Dock Company. While in that position he built, from the designs of George B. Mallory, of New York, the Oswego, which has recently broken the record between Chicago and Buffalo, the Chemung, the America, and a number of other vessels. Mr. Craig, the secretary, is the only officer of the company who is not an experienced shipbuilder. He resigned the auditorship of the Monon Railway to assume the position.

The *Railroad Gazette* recently published a table giving a complete list of the railroads that have built new main line track in the first half of 1890, also the amount of track built, the amount under contract or construction, and the amount projected or surveyed. The track built up to July 1 in the United States is 1900 miles, as compared with 1480 miles in the first half of 1889. The total built for 1889 was 5300 miles, and it is estimated that the amount built this year will probably exceed 6000. This figure is given, however, with great caution, as being an extremely difficult one to predict with certainty. The Southern States east of the Mississippi lead in new construction, as they have done for the last two years. The new road built in those States so far is 54 per cent. of the whole. In the year 1889 they built 36 per cent. of all. The Southwestern States and Territories have this year built 16 per cent. of the total road built. The Northwestern States, in which for a number of years the greatest activity has prevailed, have built but 10 per cent. of the total mileage for the first half of 1890, and built but 10 per cent. of the total for 1889. Georgia leads all the States in the amount of road built so far this year with 183 miles. The chief characteristic is still, as it has been for many months, short extensions of old lines. The entire amount built so far has been by 96 companies, averaging less than 20 miles each; but five of these have built over 50 miles each. The struggle to occupy new territory is chiefly in the State of Washington.

A dispatch from La Rochelle, France, speaks of the improved market for American agricultural machines, English markets being unable to compete since the recent advance in wages. American agents, at the same time, are making a reduction of 10 per cent.

Slow Burning Construction.

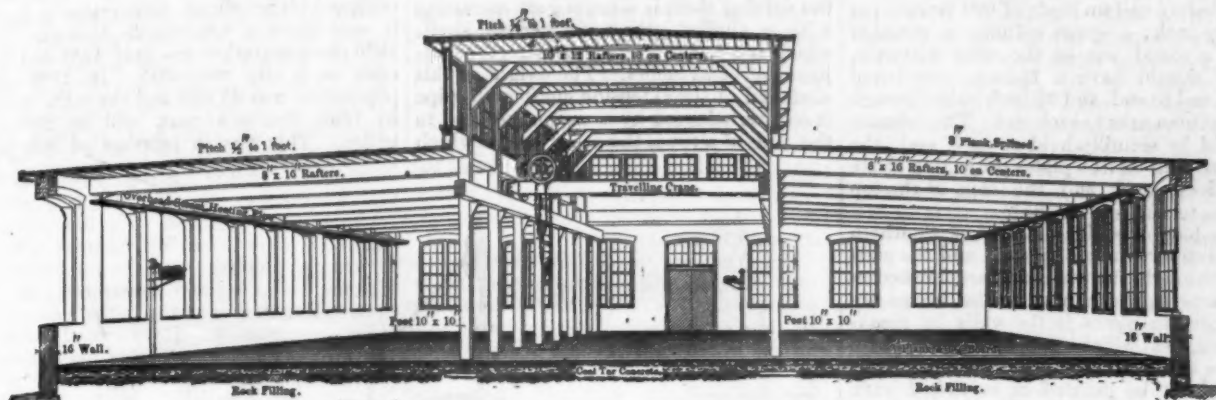
The Boston Manufacturers' Mutual Fire Insurance Company recently issued a circular, by C. J. H. Woodbury, describing and illustrating examples of one-story slow burning construction. We reproduce some of the drawings and accompanying text:

For establishments on cheap, level land, especially where the stock is heavy, one

mination. Forced circulation of heated air is a very desirable method of heating a mill, being economical as to maintenance and repairs, and thoroughly under control. Overhead steam pipes are very satisfactory, if used in the ratio of 1 foot of 1½-inch pipe to 70 cubic feet of air. It is convenient in machine shops to provide rails extending the length of the building under the roof timbers, for the purpose of clamp-

have remained sound since 1865; but double flooring at right angles can be laid on the concrete without the use of sleepers and nailed together. It is usually preferable to secure nailing strips to stakes 4 feet apart each way and driven to grade, concrete flush to top of strips and lay single 1½-inch flooring.

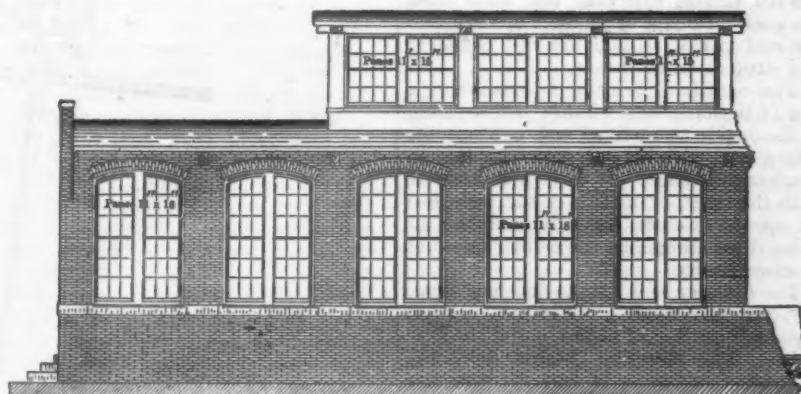
Piers reach to roof timbers, and light walls to window sills are finished with



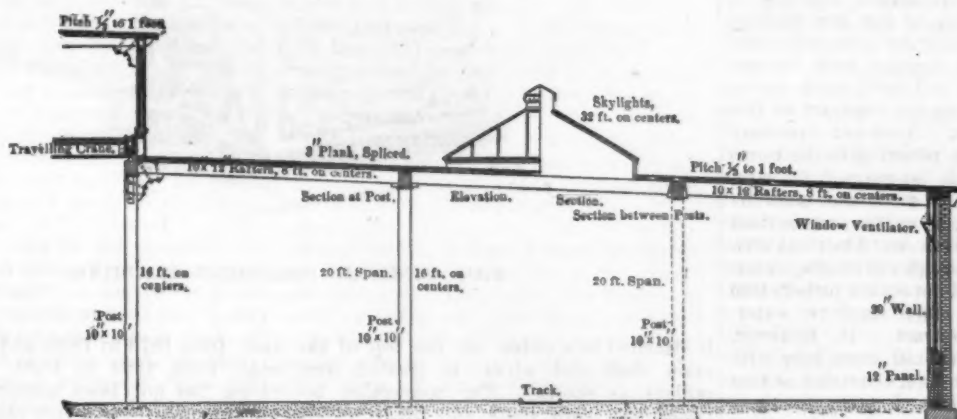
Machine Shop—Section.



Window Ventilator.



Machine Shop—Elevation.



Foundry—Section.

EXAMPLES OF ONE-STORY SLOW BURNING CONSTRUCTION.

story buildings have proved to be more economical in cost of floor area, supervision, moving stock in process of manufacture, and repairs to machinery—many kinds of which can be run at greater speeds than when in high buildings. Such buildings are readily warmed and ventilated, and heavy plank roofs are free from condensation in cold weather; the large window area reduces the hours of artificial illu-

ing counter shafts to these rails as may be desired.

Floors over an air space or on cement are subject to dry rot. Asphalt or coal tar concrete is softened by oil, and the dust will wear machinery, unless covered by flooring. Floors made by laying sleepers on 6 inches of pebbles, tarred when hot, then 3 inches tarred sand flush to top of sleepers and covered by double flooring,

slope on inside. In some instances it is preferable to build brickwork up to window sills and support the roof by square posts filling the spaces between the windows, and which are secured to the beams by timber knees or iron brackets. Large windows are placed high and the sashes separated by a mullion. Lower sashes should be stationary and glazed with rough glass, with transom sash or window

ventilators above. If the light is too strong, apply to glass white zinc and turpentine. The swinging sashes in monitor can be moved in groups by bell cranks from a shaft turned by an endless screw. The connection should not be rigid, but flexible steel links or springs should be introduced to provide for the sashes being out of line, and also to close with them an amount of yielding pressure sufficient to prevent any jarring.

Wooden mill columns, Southern pine or oak, safely sustain loads of 600 pounds per square inch; a square column is stronger than a round one of the same diameter. They should have a 1½-inch core bored from end to end, and 2½-inch holes through the column near to each end. The columns should be securely held at each end, the base resting on iron plates projecting above the floor level, and the caps at the top bolted to the roof beams.

Double or solid timbers of Southern pine support the roof plank, and the ends pass through the wall, and are finished as brackets to the cornice. The beams are anchored to plates in the walls by means of tongues which project into grooves across the lower side of the beams. Beam should not be painted or varnished until thoroughly seasoned. The roof plank should be two bays in length, breaking joints every 3 feet. There is no need of gutters, but a concrete walk, sloping toward drains, will take the water from the roof. Do not drive nails upward into the roof plank, as moisture will condense and drop from the heads.

The ventilator is made by removing a row of lights from a window and securing to the inside an inclined sash in a suitable frame, and with hinged cover having an overhanging edge. It does not interfere with the light, or motion of the sash, can be opened or closed at will, and the air being directed against the ceiling does not produce drafts.

The foundry roof has no lodging place for dust if a sloping cover is placed on the small portion of beams under the skylights. The stringing beams hold the alternate roof beams by iron stirrups, and should be 10 x 15 inches. The roof plank should be slightly raised at the left of the skylights.

The question has arisen whether it would be a violation of the law relating to alien contract labor for a manufacturer to emigrate to this country with his employees, machinery and tools, such movement being free from any contract on this side of the water. Assistant Secretary Tichenor replies by referring to the terms of the law: "This language," he says, "evidently applies to a contract made by and between aliens, as well as to a contract made by and between an American citizen and aliens, although our courts, as has been decided, could not obtain jurisdiction over a non-resident alien employer entering into such a contract. If, however, the alien employer should come here with his employees under such a contract as that described in the law, I presume there could be no question that the third section of the law could be enforced against him, provided proof were produced on trial to establish the existence of such a contract." And again: "It is well known that the main object of the Alien Contract Labor law was to remedy, so far as possible, the manifold evils arising from the importation of aliens under contract to compete with our own people by working for less wages, thus either throwing them out of work, and thereby depriving them of the means of support, or greatly reducing their wages, much to their inconvenience and injury. Whether the transfer of a plant with all its laborers from a foreign country to this would be considered as part and parcel of

the evil which was sought to be remedied, is a question concerning which considerations may be properly addressed to the law-making power."

Polishing Machine.

The machine we here illustrate is made by the Concord Axle Company, of Penacook, N. H., and is intended for polishing granite and other stone. On the end of the driving shaft is a bevel gear engaging with a similar gear on a vertical shaft, which is 4 feet long and has a vertical adjustment of 22 inches. The weight of this shaft and of the extension shaft with pipe is counterbalanced by a weight secured to the end of a rope, the other end of which

has a population of 117,089, but this figure was not satisfactory to the ambitious merchants of the town, and a fund was raised to recount the people with the result that 23,000 have been added of persons who claim that they were not enumerated. Of these a great many will be found to be duplicates, but a very conservative estimate of the increase is 7000 names, which will give the town nearly 125,000 total. This will place Denver at least on a par with Indianapolis, but even if we accept the estimate of the official enumerator as final, it will show a remarkable increase. In 1870 the population was only 4759 and the rank as a city was 65th. In 1880 the population was 35,630 and the rank 49th. In 1890 Denver's rank will be 25th or better. This was an increase of 800 per



THE CONCORD POLISHING MACHINE.

is attached to a swivel on the top of the main shaft and which is guided over pulleys as shown. The connection between the main shaft and the extension shaft, and also the connection of the extension shaft to the polishing wheel are made through universal joints, thereby allowing the polishing wheel to be moved in every direction. The engraving brings out clearly the form of the polishing wheel. All parts of the machine are made interchangeable.

An unintentional injustice was done the city of Denver, Col., in the article on page 14 of *The Iron Age* of date July 3, headed "Our Large Cities." No mention was made of that city at that time, although it will very properly come within the 100,000 class of cities. According to the official report of the Census enumerator, Denver

cent. from 1870 to 1880, and about 330 per cent. from 1880 to 1890. Denver's increase has not been merely in numbers, but there has been a very material increase in wealth, wholesale business and manufacturing.

Within a few days canvassers will begin the work of collecting manufacturing statistics from the industrial establishments of about 1000 manufacturing centers throughout the country. The questions which manufacturers in every section will be asked to answer cover inquiry into capital invested and return on it, cost of raw materials, number of employees and the wages paid them, and such points. A penalty as high as \$10,000, with or without one year's imprisonment is incurred by whomsoever refuses to give the information sought.

Duplex Boring Machine.

This machine is designed for boring two pump cylinders at one time, and while the centers are fixed, they can be built different distances apart to suit requirements. The platen is fed by a nut and a screw driven by a 2½-inch feed belt. The power feed can be run either way without shifting the driving belt by the change gears that are operated by the lever shown over the right hand corner of the door. The feed nut can be thrown in or out of contact with the screw by one turn of a small crank. The platen has hand feed admitting of quick return or for counter-boring, and has a travel of 14 inches. The knee that supports the platen can be raised and lowered and securely bolted to the face of the column by two ½-inch bolts, with heads

The yacht will be of steel, 240 feet over all, 204 feet on the water line, 13 feet draft and 27 feet beam. She will have cost about \$300,000 when completed, and will be one of the finest steam yachts afloat.

The Cruiser Maine.

The construction of the big cruiser Maine at the Brooklyn Navy Yard is progressing so rapidly that she will be ready for launching probably toward the close of September. The Maine is the first armored cruiser ever owned by this Government. Her displacement, 6648 tons, is more than 2000 tons greater than the Baltimore or Philadelphia and 600 tons greater than the big iron clad monitor Puritan. Her hull and machinery alone will cost \$2,500,-

where it is 4 inches thick. All the designs for the Maine were drawn up by the Navy Department.

The Calumet Works.

The Calumet Iron and Steel Company, at Cummings, Ill., started up their bar and puddle mills again for regular work on the 14th inst. During a shut down of nearly six weeks the new manager, B. L. Keen, has thoroughly overhauled and repaired the furnaces, engines and rolls. The furnaces have had their gas flues cleaned out, the valves and checker work repaired and changes made in some of the hearths when they were not working well. The mill and auxiliary engines and connections have been refitted and made steam tight, so that they will do their full duty, and all the mill engines have been fitted with condensers. New rolls have been put in where necessary, old ones turned up, and feed rollers and other labor-saving appliances have been attached to all the mills, including the 9-inch guide mill. These details are given to show how thoroughly the plant has been overhauled and put into shape. Mr. Keen has also built and put into operation during this time five out of twelve new coal fired double puddling furnaces in connection with Hazleton upright boilers. The new furnaces give very fair satisfaction, and turn out a very good quality of muck bar, and, while it is yet a little early to come to any definite decision, the indications are that they will be successful in not only producing satisfactory iron, but that the waste gases will generate all the steam the mills will use. The new boilers steam well, and if after thorough test the first five now built prove satisfactory the remainder will be put up in connection with the seven other puddling furnaces. When these improvements are completed the puddle mill will have three double gas fired scrapping furnaces, one double-double gas fired boiling furnace, and 12 double coal fired boiling furnaces, and it will be the largest puddling plant west of Youngstown. The order book of this company is in good condition, and, barring the troubles always attendant upon reassembling the crews after so long a shut down, everything seems to be working smoothly, with the mill in a fair way to take the position it is entitled to hold in the Chicago and Northwestern markets by virtue of its location and facilities.

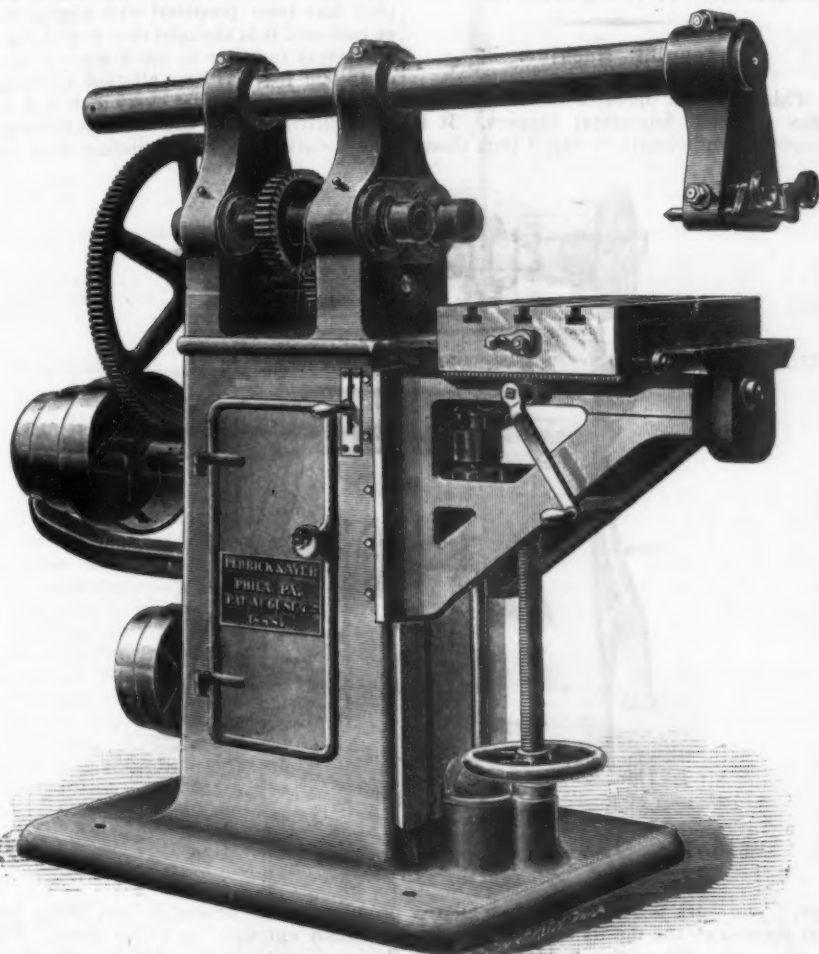
Southern Cities.

The rate of increase in Southern cities, according to early census reports, is remarkable. Here are some of the figures, as compiled by the New Orleans *Times-Democrat*:

	1890.	1880.
Louisville.....	180,000	123,753
Memphis.....	75,000	33,592
Nashville.....	72,456	43,350
Atlanta.....	65,000	37,409
Savannah.....	43,214	30,709
Dallas.....	39,300	10,358
San Antonio.....	38,900	20,550
Galveston.....	35,000	22,243
Chattanooga.....	32,000	12,892
(With suburbs).....	46,000	.....
Houston.....	32,000	16,515
Fort Worth.....	31,000	6,663
Birmingham.....	27,000	3,064
(With suburbs).....	55,000	.....

This increase, or anything resembling it, will not be found outside of cities. The tendency of the Southern negro is to flock to the cities and engage in almost anything rather than stay on the soil.

Another Joggins raft has gone to pieces. International law should forbid the placing of such formidable obstructions on the great ocean highway.



DUPLIX BORING MACHINE.

fitted to the T slots in the column. The spindles are of steel, main journals are 3½ inches diameter, 6 inches long; rear journals 2½ inches diameter 5 inches long, with a 1½-inch hole running through; the ends are bored to receive cutter bars or other tools, size, 2 inches at large ends, 1½ inches at small end and 12 inches deep. On top of the machine a 4½-inch hammered steel bar projects to receive the center supports for the ends of the boring bars when needed. The platen is 16 inches wide and 20 inches long, with T slots for attaching angle plates or work to be done. The machine is driven by a three-step cone, large cone being 14 inches diameter and 4½ inches face, and is back geared 14 to 1, giving ample power for heavy cuts. Weight about 4500 pounds. The builders are Pedrick & Ayer, 1001 Hamilton street, Philadelphia, Pa.

J. Beaver Webb, the yacht designer, awarded a contract for a large steam yacht to Neale & Levy, shipbuilders, of Philadelphia, said to be for Clarence Postley.

000, which is about as much the total cost of both the ships Baltimore and Philadelphia added together. Her speed, according to the requirements, is 17 knots, and her engines, driving twin screws, are of the vertical triple expansion type. The protection of the Maine consists of an armor belt of steel 180 feet long and 11 inches thick, the two forward ends being joined by a 6-inch armored athwartship bulkhead. Above the belt and below the turret oval redoubts carrying 10-inch armor protect the turret bases, loading tubes and machinery. The turret armor itself, protecting 10-inch guns, mounted in pairs, varies in thickness from 10.5 inches to 11.5 inches. Besides the 10-inch guns in her two echelon turrets, the Maine will carry two 6-inch guns mounted in recessed bow ports, two in the superstructure deck in broadside and two in quarter ports. The conning tower armor is 10 inches thick, and a 4.5-inch tube runs down from it to the protective deck. The armored deck is 2 inches thick, except on the slope at the after end of the belt,

NEW PUBLICATIONS.

ANNUAL REPORT OF THE TERRITORIAL GEOLOGIST TO THE GOVERNOR OF WYOMING, January, 1890. By Louis D. Ricketts, D.Sc. 8vo., pp. 80, paper.

The recent admission of Wyoming as the forty-eighth State of the Union arouses interest in such statistical and descriptive reports as this by a competent engineer. The territorial geologist has given with much fidelity the observations of two years' examination of the mineral and other natural resources of Wyoming. He has reported in detail the various coal outcroppings and workings. The coal measures will apparently form the greatest attraction to capitalists of all the resources of the new State. The deposits are extensive, and while they are numerous in localities, vary in thickness from unworkable seams to 15 and 20 feet. Particular attention has been given to the Almy seams near the Utah line, the Rock Springs mines of Laramie County, and the Carbon, Dana and Hanna mines, all lying within the Union Pacific railway 20-mile limit, though the coal fields of Northeastern and Central Wyoming, beyond this limit, have been sketched. The production of coal in Wyoming the past four years has been:

	Tons.
1886.....	829,355
1887.....	1,170,318
1888.....	1,409,506
1889.....	1,412,958

The market for Wyoming coal is west and east along the line of the Union Pacific railroad, and also Eastern Colorado, Southern Nebraska and Northern Kansas. The demand increases as these sections become populated. In 1888 there were 12 mines in Wyoming shipping coal; in 1889 there were 24 such mines.

The hematite iron ores form the next most important mineral production of the new State, but the workings are not yet extensive. The notes on the petroleum fields are more interesting and promising to those who will institute more intelligent prospecting than has been done by most of the operators in Wyoming, where there are natural indications of much value.

Besides the soluble salt deposits of several kinds, of which numerous small lakes present some notable examples, the other mineral resources are not deserving of special notice. Aside from the coal production, the agricultural and grazing portions of the new State must be the chief reliance of its people.

FORMS AND LAWS FOR THE ORGANIZATION AND SUCCESSFUL MANAGEMENT OF BOARDS OF TRADE, VILLAGE IMPROVEMENT SOCIETIES, &c. 12mo., paper, 130 pp. Albany. By H. Newell Gilbert, Esq., Binghamton, N. Y.

A very long and explicit title has been given to this useful manual, which is designed to guide as well as stimulate to corporation advertising of towns and localities. Samples of articles of organization and also of advertising are given. Its directions embrace the legal requirements of the laws of every State in the Union, and of the Dominion of Canada, and also recommendations of important newspapers and periodicals for the use of boards of trade.

The business interests of the Swindell & Smythe Company, engineers and contractors, of Pittsburgh, and those of the Alex. Laughlin Company, Incorporated, engineers and contractors, of Cleveland, Ohio, have been consolidated and a new company formed to be known as the S. R. Smythe and Laughlin Company, with headquarters in the Lewis block, Pittsburgh. A charter of incorporation has been applied for by the new concern with

a capital stock of \$100,000. The interest of Henry Swindell in the old firm of the Swindell & Smythe Company, has been purchased by S. R. Smythe. The officers of the new company are as follows: S. R. Smythe, president; Alex. Laughlin, vice-president and treasurer, and H. E. Smythe, secretary. Since the formation of the new company they have received some large contracts, among which may be mentioned the following: The removal of the entire furnace plant of Hussey, Binns & Co., Limited, from Pittsburgh to Charleroi, Pa.; the erection of two furnaces and necessary gas producers for the Baackes Wire Nail Company, of Cleveland, Ohio; the remodelling of the entire furnace plant of the Trumbull Iron Company, at Girard, Ohio, and the construction of five furnaces and six of their improved gas producers for Cartwright, McCurdy & Co., iron manufacturers, of Youngstown, Ohio.

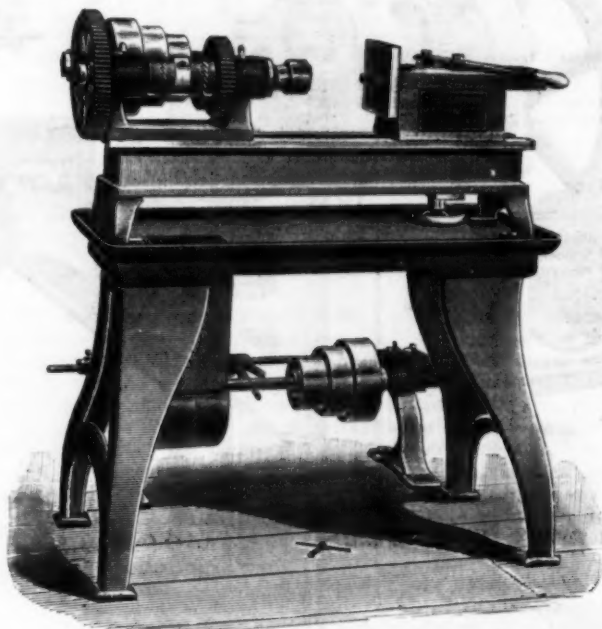
Tapping Machine.

This machine operates on the general plan of small horizontal tappers. It is geared up sufficiently to tap 1-inch diam-

exchange freight with any other road outside of the city limits and without any unnecessary switching.

Products of Colorado.

A display of the mineral and other products of the State of Colorado will be given at the St. Louis Exposition this fall, under the auspices of the State Bureau of Immigration and Statistics. The Legislature authorized the bureau to make an exhibition each year at some point outside of the State. The first was held last fall, at which time the governor selected Chicago as the place for the display. The display was not as complete as could have been desired, on account of lack of time, but it attracted a great deal of attention and was the means of bringing many people and much foreign capital into the State. This season's display has been prepared with a great deal of care and it is thought that it will represent every industry in the State. A space of 16,000 feet has been allotted Colorado, and it is expected that every inch of it will be required to show the exhibits collected. The location in the building is a very



TAPPING MACHINE.

eter. The work is held on the face plate, and pressed on the tap by the lever shown in the cut. When the tail stock slide strikes the stop adjusting screws the driving clutch is gradually drawn out of gear, and then a slight backward pressure on the lever throws in the fast running reversing clutch. The tap chuck is a self-centering two-jawed chuck of special construction. The body of the chuck makes a universal joint with the end of the spindle to accommodate work out of center or taps not running true. The chuck jaws grip the round shank of the tap to center it, and also close in around the square end to drive by. The tail block is adjustable along the bed and bound by the hand wheel shown below. Chips and oil fall through the open bed to the large pan below, and the oil drains into a reservoir when it is drawn off to supply an oil pot overhead, not shown in cut.

The principal measurements of this machine, which is made by the Garvin Machine Company, of New York, are: Tight and loose pulleys, 8 x 3 inches; speed of countershaft, 350; shipping weight, 540 pounds.

An immense railroad freight clearing house is to be established southwest of Chicago, so arranged that any road can ex-

prominent and accessible one, being near the main entrance on Olive street. The Pueblo County display will include an exhibit of the Colorado Coal and Iron Company, which will occupy 425 feet. Of this 400 feet will be used for iron ore and the balance for coal. Chaffee County will have an exhibit of marble of various colors and kinds. The display of granite and sandstone will be large and complete, and is intended to fully represent the wonderful resources of Colorado in this line. An agricultural display will be made, as well as one of all the birds and animals in the State. The latter exhibit will comprise nearly 5000 specimens. In connection with the exhibition, daily lectures on Colorado will be given in the large music hall. These lectures will be illustrated by about 1000 views of scenery, which were furnished by the Colorado Midland, and Denver and Rio Grande Railroads. The entire expense of the exhibition will be borne by the State.

St. Paul papers credit Henry Villard with entertaining a gigantic warehousing scheme in that city, the object being to do away with drayage between the railroads and the wholesale dealers. The expenditure involved is \$3,000,000.

THE COST OF PIG IRON.

Carroll D. Wright, Commissioner of Labor, has just issued in a tabular statement the returns of a large number of reports covering the cost of the production

The furnaces in Table 2 in the report use anthracite wholly or partly, as a fuel. Some of them produced Bessemer pig, others foundry iron, and others were running on Gray Forge.

Nos. 1 and 2 are evidently located close to another, since they use the same burdens. In fact the figures seem to indicate

be observed, however, that the product of 22,981 tons in 181 days yields an average of 127 and not 63 tons per day. The cost of raw materials is very high, so that relief has evidently been sought by using cinder. No. 8 is one of the small anthracite stacks using an enormous amount of fuel, which, however, is cheap, relatively speaking, the plant being evidently located near the coal regions.

Table 3 presents the reports made by makers of coke Bessemer pig. They evidently include producers in Western Pennsylvania and in Ohio. Roughly, they may be located by the relative cost of ore and fuel. Nos. 2 and 10 are notable for a low consumption of fuel, coupled with a fairly cheap ore, and, in the case of No. 2, very low labor account. The result is the low cost of \$13.58 for No. 2, and \$18.43 for No. 1. Nos. 12 and 11 follow, with \$13.88 and \$13.91. The returns evidently do not include, however, reports from some of the largest and most successful plants. But, on the other hand, they are not likely to embrace reports of producers who know themselves to be weak. No. 7 is a low phosphorus iron, produced from foreign ores. In No. 15 the figure given under "Supplies and Repairs" includes all expenses except materials, labor, officials and clerks. The cost of repairs for the establishment was unusually high during the period covered by the investigation. All the furnaces are located in what the report calls the "Northern district" of the United States.

Table 4 deals with a number of furnaces producing with coke, foundry grades, or Gray Forge. Nos. 1 and 2 use rich ores, to which they seem to have good access, with coke costing a little over \$3 per ton. They are both small furnaces, which is reflected in their labor account. No. 3 is particularly interesting. The furnace ran for part of the year on foundry iron and part on Bessemer pig, the first series of figures giving the cost for foundry and the second for Bessemer. Except in the matter of cost of ore, the figures are nearly

Table I.—The Cost of Charcoal Iron.

Items of cost.	No. 1—North H Blast.	No. 2—North H Blast.	No. 3—North H Blast.	No. 4—North H Blast.	No. 5—North H Blast.	No. 6—North C Blast.	No. 7—North C Blast.	No. 8—South H Blast.
Days run.....	150	344	100	305	241	248	317	353
Product, tons.....	2890	24945	11779	18514	3000	2500	1582	14,398
Product per day, tons.....	19	73	60	44	12	10	5	41
Proportion of materials per ton of product:								
Ore, per ton.....	2.460	1.617	1.600	1.882	2.550	2.944	2.494	2.237
Limestone, per ton.....	(a) 0.893	0.077	0.160	0.240	0.567	0.440	0.500	0.233
Charcoal, per ton.....	0.970	0.906	0.957	0.908	1.330	2.070	1.236	0.942
Cost of material per ton of material:								
Ore, per ton.....	\$4.192	\$2.478	\$3.852	\$2.818	\$2.060	\$2.900	\$3.905	\$0.878
Limestone, per ton.....	0.112	2.239	0.950	0.688	0.500	0.730	1.350	1.010
Charcoal, per ton.....	(b) 7.531	9.900	5.500	4.731	6.720	5.600	8.968	5.881
Cost of material per ton of pig iron:								
Ore.....	\$10.321	\$4.007	\$6.931	\$5.303	\$5.228	\$8.538	\$9.902	\$1.991
Limestone.....	0.100	0.173	0.152	0.165	0.283	0.330	0.623	0.235
Charcoal.....	7.307	9.043	5.267	4.722	9.000	11.539	11.631	5.541
Total cost of materials.....	17.728	13.223	12.350	10.190	14.511	20.459	22.218	7.757
Labor.....	(c) 3.589	1.194	1.237	3.094	1.022	2.932	1.601	1.461
Officials and clerks.....	0.701	0.261	0.269	0.750	0.332	0.880	0.506	0.528
Supplies and repairs.....	1.091	0.430	0.500	0.370	1.393	0.920	0.221	0.498
Taxes.....	0.086	0.044	0.106	0.090	0.467	0.090	0.127	0.085
Total of all cost.....	\$23.195	\$15.202	\$14.456	\$14.700	\$18.776	\$25.249	\$24.673	\$10.270

a. Oyster shells.

b. Cost of wood entering into the charcoal.

c. Cost of converting wood inseparably combined with furnace labor.

of pig iron made to him. The report itself is not yet published. We have before us the two tables for upward of 100 American and European furnaces. Mr. Wright has evidently tabulated the reports as they came to him, without undertaking to reject any of them which on their face were defective or insufficient. Thus we find one of them which gives cost figures on the basis of one day, while another has made just 100 tons per day over a period of 365 days. The tables are interesting, but no indications are given which might lead to the identification of the individual concerns reporting. There is room, therefore, for considerable guessing on the part of those who are fairly familiar with the iron trade of different sections. The tables are very wide, and are difficult to study in that form. We have picked a number of the most important, dropping all those which did not report for six months or more. In a few instances we have placed together reports from the same furnace running on different grades of iron.

Beginning with the reports of charcoal furnaces we have the following (Table 1): The first is evidently a Maryland plant. Three others are from the Lake Superior district, two of them in Michigan. With the exception of two, all produce hot blast charcoal iron. No. 2 is interesting as an example of a plant possessing rich and cheap ore, so that it costs only 4 cents per unit, counterbalanced, however, by costly charcoal. Nos. 3 and 4, furnaces of smaller capacity have poorer and dearer ore, but cheap fuel. The most extraordinary set of figures are, however, those reported by the Southern plant No. 8. The ore, although lean, is exceptionally cheap, the charcoal is very low, and labor, supplies and repairs are below the average. We have heard of a few well authenticated but isolated cases in which \$11 and \$12 was figured, but this is certainly the first case in which the cost has been carried down to so low a level. The locality is one enjoying an exceptional coincidence of favorable conditions.

that they are two stacks belonging to the same plant, one of which ran the whole year, while the other produced only for a part of the year, the second apparently running on stock, ore and coke, which cost more. No. 3 is a special low phosphorus Bessemer pig, made from foreign ores on

Table II.—The Cost of Anthracite Pig Iron.

Items of cost.	No. 1—Bessemer pig.	No. 2—Bessemer pig.	No. 3—Special Bessemer.	No. 4—Foundry.	No. 5—Foundry.	No. 6—Foundry.	No. 7—Gray Forge.	No. 8—Run of furnace.
Days run.....	305	184	257	167	365	234	181	252
Product.....	48800	22080	18121	8297	29300	11467	22981	8480
Product, per day.....	130	120	71	50	81	49	63 (127)	34
Tons per ton of product:								
Ore.....	1.820	1.820	1.635	2.447	2.373	2.143	1.509	1.530
Cinder, scrap, &c.....	0.488	0.487	0.403	0.587	0.000	0.408	0.493	0.834
Limestone, &c.....	0.446	0.446	0.350	0.833	0.924	1.003	0.376	0.744
Coke, &c.....	0.500	0.500	0.022	0.650	0.425	0.408	0.302	2.318
Cost of material per ton of material:								
Ore.....	\$4.950	\$5.500	\$5.250	\$1.886	\$1.550	\$2.688	\$5.854	\$3.645
Cinder, scrap, &c.....	1.008	1.120	0.900	0.800	0.750	1.000	1.572	1.300
Limestone.....	3.920	4.872	3.577	4.368	5.410	3.920	0.820	0.806
Coke.....	3.450	3.500	3.450	3.500	3.508	3.500	3.000	1.638
Cost of materials per ton of pig iron:								
Ore.....	\$9.000	\$10.010	\$8.002	\$4.615	\$3.680	\$5.759	\$8.835	\$5.578
Cinder, scrap, &c.....	0.491	0.545	0.393	0.400	0.517	0.408	0.775	1.083
Limestone.....	1.750	2.175	1.283	3.900	4.907	4.285	1.354	0.667
Coke.....	1.725	1.750	3.179	2.270	1.529	1.428	3.259	3.797
Total cost of material.....	\$12.975	\$14.480	\$13.517	\$11.260	\$10.723	\$11.880	\$14.718	\$11.125
Labor.....	1.250	1.250	1.380	2.000	1.983	1.738	1.800	1.250
Officials and clerks.....	0.091	0.091	0.000	0.404	0.238	0.442	0.274	0.441
Supplies and repairs.....	0.500	0.500	0.500	0.304	0.624	0.498	0.645	0.321
Taxes.....	0.028	0.027	0.000	0.024	0.023	0.049	0.022	0.070
Total of all cost.....	\$14.844	\$16.348	\$15.397	\$14.121	\$13.501	\$14.607	\$16.953	\$13.207

nearly three parts anthracite and one of coke. Considering the extra price secured on the special grade, the furnace must have done a pretty remunerative business. Nos. 4 and 6 seem typical of the older anthracite stacks while No. 5 is a more modern plant. The original table gives the figures for product noted. It should

be observed that the product of 22,981 tons in 181 days yields an average of 127 and not 63 tons per day. The cost of raw materials is very high, so that relief has evidently been sought by using cinder. No. 8 is one of the small anthracite stacks using an enormous amount of fuel, which, however, is cheap, relatively speaking, the plant being evidently located near the coal regions.

cheap coke, while No. 7 shows a heavy fuel consumption. No. 8, a small furnace, is chiefly remarkable for its high labor cost.

Table 5 gives a series of data on coke furnaces producing foundry and forge irons, according to the run of the furnace. Among them, however, is one, No. 6, using principally anthracite coal, and one, No. 11, using it largely. Many of them

and not 42 as the original table makes it. The fuel consumption, with a dear coke is low, and the labor account shows a surprisingly moderate average. No. 15 has lean ores, uses a good deal of limestone, a heavy amount of dear coke and pays much for labor, making a small product. No. 16 is a large furnace with lean and dear ores, moderately cheap coke, and average

interest in the property beyond the amount of their salaries, if plans now under discussion are carried into effect. In other words, the time is said to be near at hand when the owners and not the employees will run the roads.

Buying Pump Works.—English gold is now securing investment in the Ameri-

Table III.—The Cost of Coke Bessemer Pig.

Items of cost.	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 19	No. 19
Days run.....	297	171	338	344	288	205	310	216	182	365	214	348	300	333	365	226	180	173	191
Product.....	21074	25303	24741	84620	32870	72884	30000	25715	25450	30392	24183	27132	31474	41634	43800	32845	21194	20259	24647
Product per day.....	71	148	73	123	114	178	97	119	140	83	113	78	102	63	120	145	118	117	129
Tons per ton of product:																			
Ore.....	1.614	1.380	1.474	1.723	1.597	1.646	1.600	1.513	1.649	1.621	1.641	1.661	1.633	1.625	1.728	1.443	1.595	1.565	1.415
Cinder, scrap, &c.....	0.062	0.116	0.042	0.136	0.136	0.014	0.146	0.013	0.146	0.013	0.321	0.331	0.341	0.459	0.049	0.165	0.028	0.028	0.176
Limestone.....	0.332	0.320	0.391	0.490	0.600	0.343	0.534	0.581	0.423	0.308	0.321	0.331	0.341	0.459	0.817	0.611	0.457	0.466	0.569
Coke.....	0.978	0.879	1.195	1.273	1.127	0.966	1.101	1.458	0.998	0.856	1.088	1.006	1.111	1.388	1.194	1.539	1.216	1.271	1.215
Coal.....	0.308				0.057		0.089		0.142	0.192	0.069	0.145	0.206	0.020					0.036
Cost of material per ton of material:																			
Ore.....	5.300	6.089	6.050	5.466	5.636	5.719	7.000	6.384	5.927	5.371	5.451	5.049	5.578	5.707	6.040	6.419	5.724	5.636	5.770
Cinder, scrap, &c.....	2.850	5.998	3.250	2.469	3.800			2.278	5.538							3.71	2.000	3.000	1.996
Limestone.....	0.850	1.006	1.042	0.784	1.099	1.008	0.750	1.081	1.030	0.788	0.755	0.738	0.736	0.706	0.810	1.001	1.057	1.115	1.063
Coke.....	3.136	2.922	2.689	2.688	2.979	3.640	3.360	2.910	2.989	2.786	2.744	2.821	2.806	2.908	2.366	2.583	2.699	2.853	2.824
Coal.....	1.450				1.488		1.120		1.136	2.470	2.218	1.623	1.356	1.291					1.119
Cost of materials per ton of pig iron:																			
Ore.....	8.556	8.404	8.919	9.412	8.984	9.412	11.200	9.662	9.777	8.700	8.946	8.388	9.059	9.274	10.436	9.253	9.129	8.803	8.165
Cinder, scrap, &c.....	0.177	0.697	0.136	0.336	0.052			0.332	0.071						0.018	0.321	0.085	0.086	0.353
Limestone.....	0.282	0.322	0.407	0.394	0.623	0.346	0.403	0.627	0.431	0.243	0.242	0.244	0.251	0.373	0.662	0.668	0.483	0.519	0.605
Coke.....	3.067	2.568	3.214	3.424	3.358	3.589	3.700	3.515	2.984	2.384	2.985	2.837	3.118	4.035	2.814	2.969	3.280	3.026	3.431
Coal.....	0.448			0.085			0.100		0.161	0.327	0.154	0.236	0.280	0.026					0.040
Total cost of material.....	12.530	11.961	12.676	13.220	13.386	13.369	15.400	14.136	13.424	11.698	12.327	11.705	12.708	13.708	13.930	14.201	12.977	13.034	12.594
Labor.....	1.575	0.975	1.147	1.155	1.490	1.440	1.500	1.642	1.805	1.364	1.156	1.435	1.403	1.534	1.151	1.831	1.334	1.370	1.897
Officials and clerks.....	0.124	0.134	0.097	0.178	0.136	0.137	0.317	0.190	0.259	0.182	0.087	0.144	0.124	0.320	0.048	0.195	0.063	0.086	0.110
Supplies and repairs.....	0.240	0.403	0.170	0.500	0.484	0.250	0.550	0.793	0.416	0.308	0.318	0.579	0.466	0.936	1.375	0.982	0.418	0.429	0.908
Taxes.....	0.010	0.081	0.061	0.023	0.099	0.055	0.019	0.050	0.059	0.016	0.021	0.019	0.017	0.015		0.024	0.094	0.062	0.032
Total of all cost.....	14.479	13.584	14.151	15.076	15.535	15.281	17.786	16.811	15.823	13.433	13.909	13.882	14.718	16.500	16.504	17.243	14.906	14.981	15.536

carry considerable quantities of cinder in their burden. Among the all ore furnaces No. 1 does the best, with cheap coke and low labor cost. There is evidently some error in No. 3, since the daily make figures out 211 tons instead of 182. No. 5 has coke so cheap that it is probably a furnace located very near the fuel; but although a considerable proportion of cinder is used, the cost of iron material is high. Among the furnaces making iron with an admixture of cinder No. 8 stands lowest. No. 10 uses cheap coke in a very large quantity, due probably to some extent to high lime charge. No. 16 runs with the cheapest coke.

Table 6 will be studied with particular interest, since it deals with the Southern furnaces, embracing as it does plants in Alabama, Tennessee, Virginia and Georgia. The characteristics of the cost figures are low cost of raw materials, moderately high labor, and in some cases heavy repairs. The ore, it will be observed, is generally very lean, rarely going above 50 per cent.; but in the majority of cases the price is exceedingly low, ranging between 1.5 and 5 cents a unit. In the greater number of cases the limestone and the coke consumption are pretty high, to some extent counterbalancing the advantage of cheap ore.

The lowest figure reported is that of No. 4, clearly a furnace in the Birmingham district. While the ore is cheap, it calls for heavy lime charges. The furnace is evidently driven well. No. 1 has very cheap ore, but uses a heavy consumption of relatively dear coke, and its labor account is high. No. 2 has a particularly heavy labor cost. No. 3 evidently uses Pocahontas coke, paying a round sum for it, but gaining thereby a low fuel consumption, and a pretty good product. No. 12 has apparently a self-fluxing mixture, no limestone being reported. The ore, however, is exceptionally lean, yielding little more than 33 per cent. Still the labor is low. No. 13 fluxes heavily with a pretty lean ore. Something is evidently wrong with the figuring in No. 14. Running 364 days and making 30,338 tons, the daily product would figure out 83 tons

labor. No. 17 has low labor cost but dearer ores, heavy fluxing and moderately high fuel. For a small furnace No. 18 does well.

In all the above statements of cost, interest, insurance, depreciation of value of

can pump manufacturing industry. It has captured the plant of the Blake Manufacturing Company, at East Cambridge, Mass., and the Knowles Pump Works at Warren, in the same State. The purchase price was \$3,000,000, and the deal was man-

Table IV.—The Cost of Coke Iron.

Items of cost.	No. 1— Foundry.	No. 2— Foundry.	No. 3— Foundry and Bessemer.	No. 4— Foundry.	No. 5— Gray Forge.	No. 6— Gray Forge.	No. 7— Gray Forge.	No. 8— Gray Forge.
Days run.....	313	271	365	233	365	180	182	365
Product.....	23720	17757	32417	18614	24867	57100	22900	14214
Product, per day, tons.....	76	66	140	107	156	123	78	42
Tons per ton of product:								
Ore.....	1.527	1.566	1.599	1.634	1.582	1.068	1.649	1.165
Cinder, scrap, &c.....	0.221	0.171	0.150	0.150	0.290	0.615	0.217	0.482
Limestone.....	0.696	0.576	0.400	0.400	0.335	0.537	0.718	0.639
Coke.....	1.242	1.001	1.110	1.109	1.178	1.169	1.392	1.509
Coal.....	0.218	0.275			0.012			0.062
Cost of material per ton of material:								
Ore.....	\$4.400	\$3.710	\$3.387	4.771	\$4.102	\$5.024	\$4.384	\$3.748
Cinder, scrap, &c.....	3.000	2.500	2.146	2.147	2.353	2.819		1.830
Limestone.....	0.601	1.000	1.062	1.062	1.336	0.740	0.942	0.756
Coke.....	3.136	3.360	4.012	4.012	4.767	2.707	1.941	2.341
Coal.....	1.792	2.240			1.121			3.472
Cost of material per ton of pig iron:								
Ore.....	\$6.808	\$5.800	\$5.418	7.795	\$6.487	\$5.517	\$7.229	\$7.233
Cinder, scrap, &c.....	0.664	0.429	0.322	0.322	0.684	1.738		0.897
Limestone.....	0.401	0.576	0.425	0.425	0.448	0.412	0.676	0.584
Coke.....	3.895	3.696	4.451	4.451	5.616	3.105	2.702	3.531
Coal.....	0.391	0.616			0.014			0.318
Total cost of material.....	\$12.150	\$11.006	\$10.616	12.993	\$13.235	\$10.840	\$10.607	\$11.745
Labor.....	\$1.464	\$1.676	\$1.234	1.234	\$1.707	\$1.315	\$1.452	\$1.290
Officials and clerks.....	0.108	0.148	0.131	0.131	0.121	0.110	0.140	0.455
Supplies and repairs.....	0.268	0.347	0.161	0.161	0.188	0.220	0.587	0.500
Taxes.....		0.029	0.035	0.035	0.063	0.013	0.041	0.097
Total of all cost.....	\$13.996	\$13.296	\$12.177	14.554	\$15.324	\$12.568	\$12.896	\$14.003

plant and charges for freight on product to the place of free delivery are not included.

Through the action of bankers, who are said to control four-fifths of the Western railroads, a radical change of policy is contemplated in their management. Boards of directors and security holders will hereafter assume to control the revenues rather than agents who had no

aged by Samuel Untermeyer, of 46 Wall street, this city, and Marcus Stine. The Blake & Knowles Steam Pump Works, Limited, is the title by which the consolidated establishment will be known. Thomas D. Blake, George H. Stover, Charles L. Broadbent, Max Nathan and Marcus Stine compose the American Board of Management. This purchase differs in one respect at least from others which have

been made recently by English capitalists. All the common stock of the corporation is retained by the old owners of the plants, only the debenture bonds and preference stock being offered for sale. The debenture bonds provide that out of the earnings of the company 3 per cent. of the amount of the bond issue shall be set aside each year to constitute a sinking fund. Each

the Gulf of Mexico to the mainland, by means of jetties, a distance of about 12 miles. The land for dock purposes is 300 feet deep, on either side of the river. Being the only deep water port on the Gulf, the promoters of the enterprise are sanguine of concentrating a large trade at the point designated. The contract for the construction of the jetties has been

Pa., an eight hour turn having been put to work on the evening of the 14th inst. It is the impression that a number of other manufacturing concerns in that city will adopt a similar course in the near future.]

S. T. Williams, in retiring from the Standard Iron Company, of Bridgeport, Ohio, was presented with a handsome gold

Table V.—Cost of Coke Pig Iron. Run of Furnace.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14	No. 15	No. 16
Days run.....	340	304	182	361	366	366	366	357	309	236	120	184	124	306	234	167
Product.....	30465	32633	38415	50316	36479	33730	34543	32990	26016	18214	5577	17089	9182	24401	37240	30873
Product per day.....	118	107	106	156	100	89	94	91	84	606	49	96	74	80	111	119
Tons per ton of Product:																
Ore.....	1.586	1.336	1.624	1.069	1.294	1.859	1.212	1.237	1.278	1.569	1.881	1.643	1.546	2.239	1.675	1.496
Cinder, scrap, &c.....	0.386	0.386	0.148	0.479	0.478	0.466	0.388	0.446	0.509	0.509	0.309	0.257	0.182	0.093	0.194	0.194
Limestone.....	0.400	0.451	0.646	0.479	0.981	0.724	0.720	0.475	0.573	1.004	0.949	0.505	0.627	1.597	0.823	0.362
Coke.....	1.197	1.117	1.348	0.912	1.373	0.461	1.288	1.178	1.118	1.534	0.896	1.103	1.183	1.242	1.092	1.031
Coal.....	0.011	.....	.....	.....	0.768	.....	.....	.....	0.209	.....	0.405	.....	.....	.....	.....	.....
Cost of Material per ton of Material:																
Ore.....	4.464	4.992	4.272	4.500	5.535	4.000	5.243	4.645	5.861	4.044	3.137	3.876	5.128	2.586	5.236	4.183
Cinder, scrap, &c.....	2.801	3.250	.....	.....	2.948	.....	2.730	2.594	3.252	2.682	2.213	3.101	3.250	1.742	.....	1.789
Limestone.....	0.662	0.1000	0.750	0.900	0.838	0.900	0.672	0.514	0.750	1.210	0.881	0.900	0.896	0.400	0.798	0.930
Coke.....	2.782	3.015	3.471	3.640	1.553	4.700	2.979	2.746	3.470	1.322	3.203	2.770	3.080	3.080	2.827	4.827
Coal.....	2.406	.....	.....	.....	5.576	.....	.....	.....	1.900	.....	2.888	.....	.....	.....	.....	.....
Cost of Material per ton of Pig Iron:																
Ore.....	7.525	6.671	6.937	7.510	7.160	7.435	6.355	5.745	7.492	6.344	5.899	6.368	7.925	5.790	8.799	6.259
Cinder, scrap, &c.....	1.009	0.480	.....	.....	1.410	.....	1.282	1.007	1.446	1.371	0.685	0.798	0.593	0.163	.....	0.347
Limestone.....	0.305	0.451	0.410	0.431	0.827	0.652	0.484	0.386	0.429	1.214	0.837	0.404	0.561	0.635	0.256	0.336
Coke.....	3.331	3.367	4.679	3.320	2.106	2.167	3.776	3.234	3.886	2.495	2.887	3.084	3.644	3.824	3.087	4.975
Coal.....	0.020	.....	.....	.....	2.748	.....	.....	.....	0.410	.....	1.342	.....	.....	.....	.....	.....
Total cost of material.....	11.147	11.492	12.506	11.361	11.502	13.002	11.897	10.372	13.000	11.354	11.650	10.624	12.723	10.412	12.112	11.917
Labor.....	1.100	1.208	1.613	1.321	1.242	1.290	1.559	14.04	1.446	1.804	1.447	1.800	1.307	1.806	1.647	1.304
Officials and clerks.....	0.307	0.132	0.211	0.068	0.165	0.470	0.086	0.150	0.246	0.469	0.245	0.090	0.087	0.197	0.107	0.053
Supplies and repairs.....	0.281	0.300	0.300	0.950	0.235	0.623	0.235	0.464	0.378	0.405	0.640	0.447	0.564	0.512	0.968	0.560
Taxes.....	0.019	0.044	0.006	0.018	0.027	0.067	0.026	0.025	0.046	0.046	0.034	0.033	0.009	-0.020	0.024	0.009
Total of all cost.....	12.890	12.236	14.896	13.686	13.111	15.452	13.803	12.424	15.776	13.079	14.016	12.997	14.750	13.007	14.858	14.191

year 3 per cent. of the bonds will be drawn and paid off at a premium of 10 per cent.

The heaters in the 10-inch mill of the New Jersey Steel and Iron Company, at Trenton, owned by Cooper, Hewitt & Co., positively refused to build their fires on Monday at the wages offered by the

given to Gustav Wilke, for \$850,000, the work to be finished before the end of another year. The docks and warehouses will cost \$600,000, and the dams, dykes, dredging plant, &c., nearly \$400,000.

On the 13th inst. the bolt works of the Springfield Iron Company, at Spring-

headed cane by the workmen. Mr. Williams goes to Michigan to superintend the erection of a rolling mill.

Some weeks since the boiler makers at Pittsburgh presented a petition to their employers, asking that their hours per day be reduced from ten to nine without

Table VI.—Cost of Southern Pig Iron.

Items of cost.	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
Days run.....	283	286	344	365	371	290	106	365	323	365	365	365	315	364	328	365	361	396
Product.....	30028	35006	35158	41272	19823	29486	10353	62561	46770	34506	73000	61133	32921	30838	12002	30997	42948	11855
Product per day.....	69	61	102	113	52	81	98	86	72	95	100	84	105	42	37	109	119	35
Tons Per Ton of Product:																		
Ore.....	2.414	2.318	2.128	1.964	2.006	2.167	2.110	2.244	2.290	1.979	1.973	2.952	2.530	2.006	2.379	2.328	2.252	2.102
Cinder, scrap, &c.....	0.010	.....	.....	.....	0.100	0.090	.....	0.014	0.012	0.123	.....	.....	.....	.....	.....	.....	.....	.....
Limestone.....	0.450	0.733	0.634	1.044	0.925	0.764	0.376	0.520	0.598	0.741	0.657	.....	1.125	0.791	1.290	1.006	1.011	0.929
Coke.....	1.828	1.563	1.150	1.408	1.793	1.331	1.358	1.649	1.774	1.202	1.468	1.513	1.390	1.039	1.421	1.118	1.222	1.463
Cost of Material Per Ton of Material:																		
Ore.....	0.647	0.918	1.570	0.841	1.327	1.194	1.432	0.865	0.866	1.840	2.104	1.686	1.950	1.630	1.772	2.016	2.250	1.867
Cinder, scrap, &c.....	0.685	.....	.....	.....	1.000	1.008	.....	0.750	1.072	.....	.....	.....	.....	.....	.....	.....	.....	.....
Limestone.....	0.906	0.647	0.895	0.755	0.698	0.520	0.840	0.623	0.653	0.756	0.750	.....	0.720	0.610	0.745	0.700	0.750	0.830
Coke.....	2.643	2.916	3.998	2.545	2.622	3.960	3.731	2.673	2.838	2.963	3.360	2.664	3.024	4.104	3.797	2.699	3.262	3.074
Cost of Materials Per Ton of Pig Iron:																		
Ore.....	1.561	2.165	3.340	1.652	2.662	2.587	3.021	1.960	1.963	3.643	4.151	4.977	4.035	3.417	4.215	4.094	5.006	4.006
Cinder, scrap, &c.....	0.007	.....	.....	.....	0.101	0.089	.....	0.010	0.010	0.131	.....	.....	.....	.....	.....	.....	.....	.....
Limestone.....	0.408	0.477	0.365	0.789	0.646	0.397	0.315	0.524	0.391	0.560	0.493	.....	0.810	0.483	0.961	0.704	0.738	0.771
Coke.....	5.197	4.560	4.000	3.572	4.701	4.471	5.068	4.243	5.083	4.991	4.931	3.878	4.021	4.264	3.397	3.016	3.986	4.406
Total cost of material.....	7.173	7.202	8.305	6.013	8.110	7.554	8.404	6.527	7.417	9.325	3.575	8.855	9.766	8.164	10.573	8.414	9.810	9.362
Labor.....	1.816	2.608	1.964	1.663	1.641	1.835	1.873	1.737	2.088	1.359	1.370	0.784	1.478	0.595	1.484	1.389	1.008	1.311
Officials and clerks.....	0.056	0.196	0.173	0.420	0.456	0.178	0.145	0.156	0.209	0.130	0.103	0.049	0.155	0.170	0.172	0.130	0.258	0.435
Supplies and repairs.....	0.555	0.175	0.837	0.400	1.489	0.283	0.413	0.703	0.879	0.308	0.899	0.290	0.990	0.593	0.614	0.501	0.499	0.875
Taxes.....	0.034	0.066	0.031	0.057	0.063	0.031	0.031	0.038	0.017	0.024	0.037	0.047	0.016	0.010	0.070	0.023	0.017	0.042
Total of all cost.....	9.634	10.207	11.310	8.553	11.779	9.881	10.867	9.161	10.610	11.146	12.071	10.025	12.408	9.623	12.913	10.482	11.592	11.823

company. A strike occurred about a week ago, but it was thought that an amicable arrangement had been reached.

The State of Texas will soon have a deep water port at the mouth of the Brazos River, a company having been organized to perfect the scheme with \$2,000,000 capital, and employed engineer Corthell, who has demonstrated its feasibility. The idea is to construct a deep water channel from

field, Ill., were destroyed by fire. The loss will probably be about \$3000. No damage was done to the company's rolling mill, the fire having been prevented from spreading beyond the bolt works.

The eight hour per day movement is gaining ground rapidly at Pittsburgh. The latest concern to adopt it is the Allegheny Bessemer Steel Company, of that city, whose plant is located at Duquesne,

any reduction in pay. The demand was refused, and as a result the men have been on a strike since July 1. On Monday, however, several of the largest firms granted the demand, and it is expected that others will do the same during the present week. The boiler shops at Pittsburgh are very busy at this time, and it was found to be impossible for them to remain idle on account of having so many orders on hand.

THE WEEK.

Fortunes are hidden away in the once abandoned culm banks at the Pennsylvania coal mines. At several points good coal is being prepared for the market from this refuse by the use of machinery. At Maizeville the coal is run through screens and schutes, then under rollers and jigs to the railroad car, water being used plentifully to remove the dust.

The so-called Cracker Trust, formed in New York City a few months ago, is threatened with competition from the American Biscuit and Mfg. Company, of Chicago, who claim to have a capital of \$10,000,000. A Chicago paper refers to the movement as designed to resist the alleged encroachments of the New York concern, which has shown a disposition to "gobble up" bakeries all through the West.

About 5000 drummers, known as the Travelers' Protective Association, reorganized at Denver last week, electing Geo. S. McGrew, of St. Louis, president, and Geo. H. Randall, of New York, first vice-president. The headquarters hereafter will be in St. Louis.

The Spanish Government has given Lieut. Peral, the inventor of the submarine boat *El Peral*, a title of nobility and a sum of \$100,000 as a reward for his efforts to overcome the difficulties of submarine navigation.

The new Croton Aqueduct has cost, up to the present time, \$23,561,973.62.

Trade between the British Island of Jamaica and the United States has grown during the last year more rapidly than ever before. During the last four years the exports have more than doubled and a constantly increasing proportion of the aggregate trade of the island is being transferred from England to this country. In 1889 Jamaica imported from the United States goods to the value of \$2,400,000, and from Great Britain \$3,700,000. The island is rapidly becoming Americanized in its commercial aspect.

The annual statement of the trade of California shows that the wheat crop of 1889-90 reached 1,261,000 tons, which has been only thrice exceeded in the history of the State. The average price for the whole season was \$1.28½, marking the lowest level yet reached, the previous lowest average being \$1.31½ for the season 1884-85. The salmon pack last year was as follows: Alaska, 475,000 cases; British Columbia, 414,400 cases; Columbia River, 328,000 cases; Sacramento River, 57,300 cases; miscellaneous, 175,300 cases; total pack, 1,650,000 cases. The wine production of California shows a steady and decided increase. The shipments to New York in bulk amounted last year to 7,967,187 gallons, against 6,940,937 gallons in 1888-89.

The Australian clipper ships have been the longest to hold out against the advances of steam. Last week the British steamer *Prodane* was chartered at this port to take out a general cargo, which is the first in the trade.

The remains of the distinguished inventor, John Ericsson, will be forwarded to Sweden in the United States Steamship Philadelphia, which is placed at the disposal of the executors of the estate and of the Swedish Consul.

The round sum of \$500,000 is offered by Charles L. Colby and Joseph Pitman Earle, of this city, for the establishment of a technical school in connection with Brown University. These two well known New York millionaires have long taken an interest in the affairs of Brown. In regard to the exact scope of the plans for enlarg-

ing the field of instruction little is known. Among the features of the plan is the proposed consolidation of the Rhode Island School of Design with the new department of the university.

The Lake Superior Elevator Company, of Duluth, is now the largest owner of country grain elevators in the United States, having just formed a combination with other companies which own elevators on the Northern Pacific road clear through to the Pacific coast.

Tests of the steam heating pipes by Dr. Cyrus Edison, of the New York Health Board, show that the many complaints of leakage are not without reason. The temperature in some manholes ranged from 140 degrees to 162 degrees, while the temperature in manholes remote from the pipes was between 71 degrees and 76 degrees. Water in the Croton pipes near the steam pipes was found to be heated to 120 degrees at points where it ran into buildings. In vaults under Broadway buildings the air had been heated to 140 degrees. It is evident that to remedy existing defects the underground iron work, at points of highest steam pressure, must be of a more thorough and substantial character than that now in use. The question just now is whether the weak sections shall be cut off altogether.

The suspension of steamship communication between San Francisco and New Zealand when the present contract expires is imminent.

A celluloid trust is now spoken of, the united companies to be capitalized for \$6,000,000, several large plants to be abandoned.

Wharton Barker, of Philadelphia, who has given much attention to affairs in China, does not despair of better relations being established between the United States and that populous Empire. In an argument in favor of a repeal of the Exclusion act, he says: "I consider it the greatest commercial opportunity in the East. The country has wonderful resources, extensive anthracite coal, iron, copper and silver mines, and raises large quantities of cotton. When they begin to manufacture their own iron, cotton goods, &c., instead of sending the raw material out of the country to be made up, it will practically end all free trade either in this country or England, as it would be impossible to compete with their labor. With a population variously estimated at from 380,000,000 to 520,000,000, the country has a debt of but \$18,000,000, and that debt exists only because of a fixed pay day. I think if the people of this country ever got into China they would find more wealth than they now have any idea of, as the people try to conceal as much of their possessions as possible to escape the tax collector. I consider the Chinese superior to the Japanese, and think they will yet become the greatest power in that section of the world."

A cable road will soon be built in Montague street, Brooklyn, from Wall street Ferry to the City Hall. Wm. H. Male, vice-president of the Union Ferry Company, heads the enterprise, which will be operated in connection with the ferry system.

The Farmers' Alliance of Kansas has just made a report of the result of an investigation instituted for the purpose of ascertaining how many members of the body have mortgaged their farms, how many are renters, and how many hold their property free from incumbrance. Out of 73,000 farms heard from, the alliance find that 45,000 are mortgaged to the aggregate amount of \$146,563,184, and that of the whole number only 7500 are unincumbered. Twenty-one thousand and seven hundred are occupied by renters,

mostly men who were originally owners of farms and have lost them by foreclosure of the mortgages on them. The estimated number of farms in Kansas is 270,000, or nearly four times the number reported to the alliance.

A monster gun, 50 feet in length, with an inside diameter of 15 inches, and weighing about 40 tons, has been cast by the West Point Foundry for the Pneumatic Gun Company, and having been successfully tested, will soon be shipped to Australia.

There is a plenty of water in the new aqueduct now. From 135th street eight 48-inch iron pipes carry to the city the water brought by the works just completed. Four go direct to the big Central Park reservoir and four branch off at different points to direct connections with the city mains. Water will be sent only through the pipes running to the reservoir during the time that the aqueduct is temporarily open. Since the natural supply of water running into Croton Lake has decreased to a quantity below the 95,000,000 gallons a day, which the old aqueduct takes away, and the stored supply has to be drawn upon, it is doubtful if more than 25,000,000 gallons a day will be sent through the new aqueduct. This extra quantity, however, will somewhat increase the pressure on the mains below the Central Park reservoir, but not sufficiently to carry water more than one floor higher than at present. As a matter of fact, it means that the big reservoir will be filled and kept full; whereas, the quantity of water in it has heretofore been steadily diminished by the inability of the old aqueduct to pour water into it as fast as it was drawn out. President Duane, of the Aqueduct Commission, in an official communication to Thomas F. Gilroy, Commissioner of Public Works, says that it will probably require six weeks to complete the conduit and put it in order for permanent use.

The practicability of excluding American products from the European market is hinted at in various ways in foreign journals, the ostensible motive being to retaliate the imposition of prohibitive duties here. The growth of the trade with Germany is so vigorous that arbitrary restriction would do much violence. American hay forks, it is stated, have fairly beaten the German producers, and hoes, spades and shovels have similar success. Sewing machines, boot and shoe machines, reapers, mowers, cultivators, and a large number of other machines and tools, have been so extensively purchased from this country that German manufacturers have been obliged to imitate them and even to counterfeit American labels in order to maintain part of their trade. In the last year or two, German manufacturers have been embarrassed by the increasing cost of coal and labor and shorter hours of work, so that exports from that country have fallen off materially. Stoves are also imported by Germany largely, notwithstanding a difference of about 25 per cent. in cost, because of transportation and duties, the German imitations being not of equal quality.

A large Pittsburgh coal operator, in a conversation the other day, expressed confidence that within ten years Pennsylvania will have an extensive coal trade with Europe. "The price of English coal in the English market is steadily increasing. In any event the price of coal has gone up and is going up, while with us coal has been getting cheaper, because of the natural gas lessening the demand for coal. It will be only a short time until we can ship coal from America to Europe and sell it there in competition with English coal."

The smoke consumers in Chicago are not effective on a hot day.

MANUFACTURING.

Iron and Steel.

The South Side Iron Company, which operates a charcoal furnace at Boiling Springs, Cumberland County, Pa., have changed their name to the Boiling Springs Iron Company.

A number of Philadelphia and New York capitalists, who are interested in the development of the property of the Clinch Valley Coal and Iron Company, in Southwest Virginia, have organized a company known as the Richlands Tube Company, with the intention of erecting a large tube works at the town of Richlands, in the Clinch Valley. The Clinch Valley Coal and Iron Company were organized in 1886, and have acquired about 46,000 acres of land in Southwest Virginia. Among the owners of the property are Evans R. Dick and Adolph Ladenburg, of New York, and W. A. Dick, Joseph I. Doran, Charles H. Mellon, George Willing, Samuel Heilner, Samuel P. Griffiths and George McCall, of Philadelphia. The company will manufacture wrought iron tube and the works will have a capacity of about 125 tons a day. The town of Richlands, in which the works will be located, was founded during the present year, and already has a population of about 1000.—*Bulletin, Iron and Steel Association.*

At Youngstown, Ohio, on the 10th inst., judgments were entered in court in favor of creditors, amounting to \$17,566 against the Lancaster Iron Company, which recently commenced the erection of a rolling mill at Lancaster, Ohio.

The plant of the Jefferson Iron Works, at Stubenville, Ohio, was established in 1855, and cover about 40 acres of ground. The product is pig iron and nails, about 60,000 tons of the former, 400,000 kegs of the latter. They have one blast furnace equipped with four hot blast stoves. The cast house is 65 x 170 feet in size and the nail factory is 60 x 300 feet. The officers of the company are as follows: S. K. Wallace, president; J. F. Lagerfelt, vice-president; G. P. Hasden, secretary, and W. H. McClinton, manager.

Brown, Bonnell & Co., of Youngstown, Ohio, the largest iron manufacturers in the Mahoning Valley, signed the Amalgamated scale last week. This is the first concern in the Mahoning Valley to sign the scale.

The Chestnut Hill Furnace of the Chestnut Hill Iron Ore Company, at Columbia, Lancaster County, Pa., was blown out last week for an indefinite period, owing to dullness in the iron market and a large stock on hand.

There are indications of trouble between the proprietors of the National Rolling Mill Company, of McKeesport, Pa., and the Amalgamated Association of Iron and Steel Workers, over the refusal of the company to sign the Amalgamated scale. The firm agrees to pay the wages called for by the scale, but as a matter of principle have refused to sign the scale, owing to the fact that they do not recognize labor organizations of any kind. If the Amalgamated Association insists on the scale being signed, it is likely that a strike will occur as the firm states that under no consideration will they sign. The plant is undergoing repairs at present, but will be ready for operation in a few days.

Charlotte Furnace, at Scottdale, Pa., belonging to the Charlotte Furnace Company, of Pittsburgh, was put out of blast last week. It will be relined and new boilers will also be added.

Furnace "B" of Carnegie Brothers & Co., Limited, at Braddock, Pa., was blown out on Tuesday the 8th inst., for repairs. This leaves seven stacks in blast at Braddock, six on Bessemer and one on Spiegel.

The plant of the Aetna Iron and Steel Company, of Bridgeport, Ohio, is idle at present, while extensive repairs and improvements are being made. A new engine for the 9-inch guide and bar mill is to be added to the equipment, the greater speed and power of which will increase the output, and for economic reasons a new battery of boilers will also be added.

Furnace No. 2 of the Isabella Furnace Company, at Etna, Pa., is making a record that is probably not eclipsed by any furnace in the world. The last time it was blown out was on March 5, 1886. It was then rebuilt, and on May 25 was blown in again. It has now been in blast four years and two months. In 1490 days it has cast an average of 200 tons a day, or a total of about 300,000 tons. Furnace No. 1 has been in blast nearly two years. Furnace No. 3, now in course of erection, is almost completed and will probably go in blast this month. It is somewhat smaller than stacks Nos. 1 and 2, and will produce about 125 tons. It is being

fitted up with a new design of hot blast stoves recently patented by Hugh Kennedy, the manager of the Isabella plant.

A mortgage for \$500,000 was filed on July 1, at Allentown, Pa., against the Thomas Iron Company, of Hokendauqua, in favor of the Farmers' Loan and Trust Company, of New York. The object of the loan is to pay off \$400,000 worth of 30-year 7 per cent. bonds, which fell due on the above date, and which will be redeemed with 5 per cent. bonds.

The National Forge and Iron Company, of East Chicago, Ind., are building an addition to their plant to manufacture muck bar for their own use. A separate building will be erected to contain several puddling furnaces and a train of muck rolls. The company will then be in a measure independent of the scrap market, and they will also relieve their large bar mill of extra work now thrown on it from the busheling furnaces.

The Portage Iron Company, Limited, of Duncansville, Pa., contemplate the building of an open hearth furnace.

Furnace No. 4, of the Crane Iron Company, has blown out for repairs.

Commencing with Monday, the 14th inst., the eight-hour day will be observed in the plate mill department of the Homestead Steel Works of Carnegie, Phipps & Co., Limited, at Homestead, Pa. It has been the custom to run this department with two crews, each crew working 12 hours; but in the future three crews will be employed, working eight hours each. About 35 additional men will be employed. The eight-hour movement has also been adopted in the wire rod mill of the Oliver & Brothers Wire Company, Limited, at Pittsburgh, commencing on the 14th inst.

The Union Steel and Iron Company's plant, recently removed from Omaha, Neb., to St. Joseph, Mo., will soon be in shape to begin operations. The new works will have three times the capacity of the old Omaha plant.

The Eastern Steel Company have filed articles of incorporation in Illinois. The company have \$100,000 capital stock. They will make compressed steel castings in Philadelphia, but have a New Jersey office in Camden. The incorporators are S. C. Rockman, Henry C. Terry, George Butler, Matthew D. Johnson and Lewis Star, of Woodbury.

The Pratt Iron, Coal and Railway Company have been formed at Birmingham, Ala., by a party of local capitalists. The company have a capital stock of \$1,000,000, and have purchased large tracts of mineral land adjacent to those of the Tennessee Coal, Iron and Railroad Company. The Mary Pratt Furnace has also passed into the hands of the new concern, the purchase price being \$500,000.

The Cumberland, Md., Rolling Mill has started its 12-inch train No. 1, while the 16-inch train is gradually approaching completion and will soon be ready to start.

Spang, Chalfant & Co., Pittsburgh, have just completed a new department for making 16-inch pipe.

The Globe Iron Foundry, at Erie, Pa., will shortly double its capacity by the erection of additional plant, this being necessary to keep pace with orders.

The Clinton Furnace Mfg. Company, of Wilmington, Ohio, having a capital stock of \$100,000, intend to remove their plant to Des Moines, Iowa.

Over \$50,000 worth of machinery for unloading ore belonging to the Cleveland, Ohio, Rolling Mill Company, was recently destroyed by high winds.

For the first time in several years the five furnaces of the Lackawanna Iron and Coal Company, at Scranton, Pa., are in blast at the same time.

The North Cornwall Furnace, at Lebanon, Pa., owned by W. C. Freeman, has been thoroughly remodeled, and is now ready for blast. It is expected to make 1000 tons weekly.

Machinery.

The plant of the Westinghouse Machine Company, at Pittsburgh, is being operated night and day, and yet the firm are unable to keep pace with their orders. Among their shipments for June was one 250 horse-power compound engine to Cincinnati; two 100 horse-power engines to Australia; one 125 horse-power compound engine, and one 150 horse-power engine to Tacoma, Wash.; two 250 horse-power compound engines to Baltimore, and one 250 horse-power compound engine to the East End Electric Light Company at Pittsburgh. Their total sales for June were 79 engines with a combined horse-power of 4,295.

The Pittsburgh Malleable Iron Company, of Pittsburgh, are constructing a 50 x 120 foot addition to the works. It will be ironclad and

occupied for the most part by the foundry. The plant will be fitted up with machinery of the latest pattern, and the improvements will cost about \$75,000.

The American Tube and Iron Company, of Youngstown, Ohio, are erecting a machine and blacksmith shop 125 x 60 feet and two stories high.

The steam fitters at Pittsburgh, who recently asked for a day of nine hours with 10 hours' pay, were granted their request last week by some of the leading firms in that city. It is expected the petition will be granted by all the firms interested in a short time.

The Colwell Iron Company's building, at Cartaret, N. J., was totally destroyed by fire on Friday morning. The loss is estimated at \$25,000.

The Tennessee Coal, Iron and Railroad Company, of South Pittsburgh, Tenn., have placed an order with the Weimer Machine Works Company, of Lebanon, Pa., for two 50 x 96 x 60-inch Weimer patent blowing engines.

The St. Louis, Mo., Iron and Machine Works Company have the foundation laid for a new erecting shop 232 x 80 feet.

The Pike Manufacturing Company, of Boston, builders of steam pumps under the Blake & Knowles patent, have been sold to an English syndicate at a price said to be \$3,000,000. The Blake & Knowles interests were consolidated over 10 years ago. The negotiations for the sale have been in progress for some time, and the sale is due to the desire of George F. Blake to retire from business.

The Irrigation Pump Company, of Greeley, Col., contemplate an increase of their present capital stock of \$150,000, paid up, to \$1,000,000 about August 15. The company will be reorganized and the capital augmented for the purpose of reaching out into new territory and developing several new patents, both in this and foreign countries. They control at present 12 separate patents on lift and force pumps. Their trade extends to every part of the United States, several of the South American countries and Mexico. They have recently shipped two carloads of irrigating and mining pumps to the State of Washington, also one car of the Huffer lift pumps to Louisiana, to be used in rice plantations.

The Totten & Hogg Iron and Steel Foundry Company, of Pittsburgh, are enlarging their foundry department by the erection of a building 86 x 110 feet. It will contain a 15-ton open hearth steel melting furnace of the Lash design and necessary annealing furnaces. It will also contain four hydraulic cranes, two of 15 tons capacity each and two of 5 tons each. When the addition is completed the firm will be able to turn out castings from the smallest size up to 15 tons. They will also make a specialty of casting steamboat shafts and semi-steel rolls. A number of other important improvements and additions are being made to the plant of this company. New machinery, consisting of drill presses, lathes, planers, &c., is also being added. When all the improvements and additions have been completed, this firm will have one of the most complete plants of its kind in the country.

The Narragansett Electric Light Company, of Providence, R. I., have contracted with the Babcock & Wilcox Company for 1120 horse-power additional boilers, and also for the reconstruction of their present boilers into the Babcock & Wilcox system.

The Lidgerwood Mfg. Company, of Chicago, Boston and New York, have just opened a branch house at Portland, Ore., in charge of Joseph M. Arthur, which will be located at Nos. 1, 3, 5 and 7 North First street, that city. Here a stock of all sizes of their hoisting engines will be carried.

Byram & Co., Detroit, Mich., manufacturers of the Callian cupola, shipped during the year 1889, 72 cupolas, having a daily melting capacity of 16,016 tons of pig iron.

Hardware.

In our issue of the 3d inst. it was stated that the American Arms Company had commenced the erection of a plant at Bessemer, Ala. This statement, we are advised, is erroneous, inasmuch as the plant in question is being erected at Bluffton, Ala. The building is of brick, 225 feet long and 75 feet wide. It is expected that the works when completed will give employment to 200 men.

Hussey, Binns & Co., Limited, of Pittsburgh, manufacturers of shovels, spades and scoops, have more orders on hand at the present time than ever before in their history. They are operating their plant to its utmost capacity and yet are two months behind in their orders. They are constantly making large shipments of goods to China, Japan, Brazil, Australia and other foreign countries. As we noted some time since, this firm is

going to remove its plant from Pittsburgh to Charleroi, Pa., about 40 miles from the first named city on the line of the Pittsburgh, Virginia and Charleston Railroad. Work is being pushed rapidly on the new buildings, and they expect to occupy their new quarters some time during October next. The new plant will have double the capacity of their present one.

The Moore Mfg. and Foundry Company, of Milwaukee, Wis., notwithstanding the enlargement of their plant, recently completed, are still running overtime to fill their orders. They are shipping this week a carload of freight car door hangers to the Wells & French Company, of Chicago, to be used on 250 Milwaukee and Northern cars. They are completing eight double cylinder hoisting engines, to be shipped this month in connection with other machinery for handling coal. They are still behind on their orders for registers, door hangers, and other lines of builders' hardware. This company is getting out a new catalogue, which will be ready for distribution about August 1.

The business men of Elkhart, Ind., have arranged with S. D. Kimbark, of Chicago, to remove to their city the latter's factory, which is now located at Quincy, Mich. The products of the factory are specialties handled by the heavy hardware trade. Work on the buildings at Elkhart is to begin at once and the removal will be made in September.

The Morgan Mfg. Company, of Kalamazoo, Mich., have purchased a site and propose to establish a large plant for the manufacture of the Morgan Odorless Broiler. A building now on the place will be enlarged and remodeled, a new office will be fitted up and sheds will be arranged so as to provide suitable storage. A brick factory, four stories high, will be built, which is to be stocked with the latest and most improved machinery for stamping sheet steel and tin plate goods. Hitherto the company have been obliged to get much of their work done outside, but the new plant will enable them to control every part of the process of manufacture, thus facilitating the dispatch of business.

The Laughlin Nail Company, of Wheeling, W. Va., made arrangements to start their works in full on the 14th inst. They are reported to have large orders on their books, taken at good prices.

W. J. Clark & Co., Salem, Ohio, manufacturers of elevating and conveying specialties, advise us they have completed an order for a quantity of very large special shaped buckets for elevating coal. The size of these buckets can best be appreciated from the following dimensions kindly furnished by the manufacturers: Length, 24 inches; projection, 15½ inches; depth, 16 inches. The band around the top is 2 x ¼-inch iron, while the bodies of the buckets are of No. 10 steel. This firm is making a specialty of large buckets of heavy gauge for handling car coal, broken stone and similar substances.

The National Metal Edge Box Company refer to the success of their patent system of manufacturing metal edge boxes, as shown in the number of voluntary testimonial letters which they are receiving. The Toledo Bolt and Nut Company, Toledo, Ohio, have recently adopted the system for their extensive business. The company say, we are advised, that investigation and trial has demonstrated that the metal edge box and its method of manufacture by individual concerns has not only the stamp of novelty, and allude also to the utility of the system and the durability of the box.

Gaston, Weston & Ladd, 46 Beekman street, New York, report a very satisfactory demand for their prestoline, prestoline paste and Gaston silver compound. Their business is referred to as steadily increasing, as their product gives general satisfaction.

Miscellaneous.

The Norfolk Coal and Coke Company, of Elkhorn, W. Va., have decided to increase their capacity by erecting 200 new ovens. Stuart M. Buck, representing the company, was in Pittsburgh last week and purchased five Adams ovens from the Adams Coke Oven Company of that city to try them. If they work successfully they will put in 200 of them.

At a meeting of the Westinghouse Electric Company in Pittsburgh last week a formal transfer was made of the property to the Westinghouse Electric and Mfg. Company, and the capital stock was increased from \$5,000,000 to \$10,000,000. The company is said to have contracted within the last 60 days for the equipment of 17 railways, aggregating \$800,000.

The annual report of the New York Post Office shows a net revenue of \$3,766,408 and \$6,026,982 total receipts. The money order business amounted to \$95,230,000.

SOUTHERN MISCELLANY.

At Rockmart, Ga., the Rockmart Land and Improvement Company have been organized, with a capital stock of \$1,000,000, to engage in mining and manufacturing. The incorporators of the company are C. M. Shelly, of Birmingham, Ala.; C. R. Harkins, of Atlanta, Ga.; W. P. Davis and others. They intend laying off the town of East Rockmart.

The Batesville Iron Works Company are a new coporation at Batesville, Ark. The president is J. C. Bone, G. H. Kealer is vice-president, and C. T. Rosenthal is secretary. They propose to conduct a foundry business, and have a capital stock of \$6500.

At Ocala, Fla., the Gardner Mfg. Company have been organized to build and operate an iron foundry and machine shop. The officers of the company are as follows: D. H. Irvine, of Orange Lake, Fla., president; Charles Rheinam, vice-president, and F. N. Harrison, secretary.

A party of capitalists, headed by Barry Coleman, of St. Louis, Mo., are to erect a rolling mill at South Pittsburgh, Tenn., that is to cost \$150,000.

It is stated at Tredegar, Ala., that negotiations that have been pending between the Jacksonville Mining and Mfg. Company and Northern and foreign capitalists have successfully terminated, and a steel working plant, to employ 3000 men, is to be established.

The McCullough Iron Company, of Northeast, Md., are preparing to add four new 150-horse-power boilers, and put in other machinery that will increase the capacity of the plant.

The No. 2 furnace, of the Dayton Coal and Iron Company, of Dayton, Tenn., and the two Alice coke furnaces, at Birmingham, Ala., of the Tennessee Coal, Iron and Railroad Company, have blown out to undergo repairs.

Work has commenced on the new iron furnace at Cardiff, Tenn.

Richmond Pearson, of Ashville, N. C., and J. W. Heck, of Raleigh, N. C., are preparing to commence the work of developing iron properties owned by them in Stokes County, N. C. The Old North State Land Company are also preparing to open iron mines near Marion.

The Morgan Iron Works Company, at Shartanburg, S. C., have perfected their organization by the election of W. E. Lucas as president and treasurer, with the directors as follows: W. E. Lucas, J. K. Jennings, Alex. Long, C. H. Carlisle, W. A. Law, G. W. Nicholls and R. Z. Carter. The paid in capital amounts to \$25,000.

At Covington, Ky., the Latinal Mining and Smelting Company, with a capital stock of \$180,000, have been organized by John McLeis, J. S. Day, J. H. Oberwille and others.

C. A. Strasser, E. T. Wille and Ernest Stoffregen have become incorporated at Baltimore, Md., under the name of Strasser & Co., for the purpose of engaging in the manufacture of tools.

A. P. Thompson, Waryville, Tenn., is preparing to manufacture nails.

The iron foundry of Beard & Son, of Greenville, S. C., is to be moved to Spartanburg, S. C., according to a local report in the latter place.

J. B. Hastings, of Toledo, Ohio, is at Parkersburg, W. Va., endeavoring to create interest in the establishment in the last-named place of a wire nail works.

The manganese deposits on the property of Andrew Stockman, near Greenwood, S. C., are to be developed by a Chicago syndicate.

Samuel Croxton, an iron founder of Cleveland, Ohio, it is stated, contemplates the erection of a foundry at Dayton, Tenn.

The building of the newly organized Marion Iron and Wood Works, of Marion, S. C., is now under contract and will be pushed to a speedy completion.

The Meridian Foundry and Machine Shops, of Meridian, Miss., are preparing to put a new cotton seed hull on the market. G. W. Soule, of the same establishment, has recently invented an improved method of holding drills and other tools in drill presses.

J. B. Hopkins & Co., of Birmingham, Ala., have become incorporated under the name of the Hopkins Stove and Roofing Company.

New engines and other new machinery are to be added to the three coke furnaces of the Sheffield and Birmingham Coal, Iron and Railway Company, at Sheffield, Ala., and which have recently been acquired by the Alabama Iron and Railway Company, newly organized.

The plants of the Terminal Coal, Iron and Railroad Company, at South Pittsburgh, Tenn., are undergoing many improvements. Two new blowing engines have been ordered.

The air cylinders are 96 inches in diameter and the steam cylinders 50 inches. It is stated that they will be the largest in the South.

The Lookout Boiler Works, at Chattanooga, Tenn., is being enlarged and new machinery added. The proprietors now are Shea & Strable, who have recently succeeded Shea & Brothers.

There is marked industrial activity at Anniston, Ala. A rolling mill and a machine works are going up. The United States Rolling Stock Company are adding to their car works. Repairs are being made upon the Woodstock Furnaces.

At Fort Payne, Ala., the machinery for the new builders' hardware factory has been received, and is now being placed in position.

The contract for erecting the new repair shops at Savannah, Ga., for the Savannah, Americus and Montgomery Railroad Company, has been awarded, A. R. Coulter, of Savannah, being the successful bidder.

The Shelbyville Improvement Company, with \$25,000 capital stock, have been incorporated at Shelbyville, Ky., by T. C. Bailey, C. Kinkel, Louis Channing and others, to develop mineral lands and locate a number of manufacturing interests.

Negotiations are said to be pending between the Roane Iron Works Company and H. Howe & Co., of Cortland, N. Y., looking to the location at Rockwood, Tenn., of a large stove plant.

The East Tennessee Mining and Improvement Company are preparing to erect an iron furnace at Watauga, Tenn.

New Brass and Copper Rolling Mill.

—A very important industry has been established at Olney Station, in the Twenty-second Ward of Philadelphia. The enterprise is conducted by Messrs. Bailey & Story, both well and favorably known throughout the United States in connection with the iron and steel trade, Mr. Bailey being of the firm of J. F. Bailey & Co., and Mr. Story until recently in charge of the Philadelphia interests of Park Bros. & Co., of Pittsburgh. The new mill is equipped with all the modern and improved appliances, and is said to be the most complete establishment of its kind in the country. The firm have 4 acres of land, with a never failing supply of water from springs near by, direct rail connections into the premises; and every essential necessary for prompt and economical work. The engine is of 450 horse-power, built by Robert Wetherell & Co., of Chester, Pa., and the four trains of geared rolls are from Birmingham, Conn. Major Powe, who was upward of 20 years with the Ansonia Brass and Copper Company, is the superintendent, and his son, Lewis Powe, the assistant superintendent.

The new torpedo boat Cushing sailed from the Brooklyn Navy Yard Friday afternoon, bound for Newport, and on the trip proved to be the speediest vessel of her class in the world. She made the run between Brooklyn and New London, 120 miles, in 4 hours and 44 minutes, an average speed of 25.35 miles an hour for a continuous run. The Cushing can be turned in her own length, being fitted with two propellers and two separate engines. By backing one engine and steaming ahead with the other the torpedo can be "twisted" about like a flat bottom row boat. She has steamed at the rate of 18 knots an hour with one engine only, while dragging the other propeller, and with both engines in operation and using only one boiler she can travel 17 to 18 knots.

The Ericsson submarine gun is offered to the United States Government by Geo. H. Robinson, formerly of the Delamater Iron Works, who contends that its adoption will enable the Government to convert its heavy smooth-bore guns into submarine torpedo guns at a very small cost, and thereby utilize millions worth of obsolete ordnance.

The Iron Age

New York, Thursday, July 17, 1890.

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The Erratic Iron Trade.

The iron trade has always been more or less eccentric, and it is keeping up its reputation. The past two years have been full of surprises to everybody. Veteran observers who were rarely wrong on the market before have been hopelessly led astray. The prophets who study statistics and construct profoundly ingenious theories of cycles of high and low prices have struck a cycle that was absent from previous calculations. In fact, all students of the markets have found themselves hopelessly floored in trying to make a forecast of the future for what, under other circumstances, would have been considered a very reasonable period of time. The brief revival in the summer and fall of 1888 was the beginning of this remarkable cycle of uncertainty. Everybody, except those who had not covered on their contracts, hailed the upward movement in prices at that time with great delight. After a long spell of dull trade and low prices the sky was again bright and the future looked promising. The most pleasant feature about this revival of business was the setback which was thus given to the croakers who had predicted a very poor year for business on account of the approaching Presidential election. But the little boom faded gently away, much to the disgust of those who had accepted its appearance as the harbinger of a season of active trade and inflated prices.

Then the political prophets began to operate their machinery. The advocates of both the leading candidates promised the country an era of prosperous trade. When the election was over and the result was known to have been so decisive that the defeated party uttered no protest, the era of prosperity that had been so confidently predicted postponed its appearance. Trade grew worse instead of better, and the only people who proclaimed that they had not been disappointed were the political prophets of the defeated side. Then, with no financial troubles disturbing the situation, with no fear of unfavorable legislation casting even a shadow on the path of the manufacturing industry, and with a heavier consumption than ever before known in this country the prices of iron and steel sunk lower and lower, until in the spring of 1889, a depth was reached which had never before been attained in the history of this country. It was a most surprising experience. With a widespread feeling of confidence in business circles throughout the entire country and a general expectation that prices would be higher, values steadily receded until cost-

was about reached and in some commodities was actually passed. This was another surprise. We are told that a lack of confidence is the cause of business depressions, and that returning confidence brings with it an improvement. Such was not the case with the iron trade. Manufacturers felt confident and talked most hopefully of the prospect until they were absolutely compelled by circumstances to change their views.

A circumstance which probably contributed greatly to keep up their confidence, and perhaps prevented them from realizing the actual gravity of the situation, was the singular vigor of foreign iron markets. Here was another surprise. It was hard to believe that the time had actually arrived when the American iron market moved independently of foreign influences. The persistent refusal of the domestic market to sympathize with the upward course of prices abroad caused further errors of judgment among well-informed members of the trade. They could not help reasoning that a large increase in production was to be expected, because the ore market was active, with heavy sales being made for delivery far ahead, while blast furnaces and other iron and steel plants were building in considerable numbers in various sections.

When the rise of 1889 came, the first indications of an improvement were discredited by many of the shrewdest in the trade. Their lack of confidence at the time when it would have been well founded prevented them from reaping advantage either as buyers or sellers. The upward movement continued just long enough to convince almost everybody that the foundations had been firmly laid for a year at least of good trade. Large consumers anticipated their requirements far into the future and the inevitable speculator joined the procession of buyers.

Then came another awakening, when unexpected weakness developed about the beginning of the present year. The vigorous unloading which followed ran prices down again to surprisingly low figures, and when the outlook was very discouraging another heavy buying movement set in, almost reversing the situation.

No attempt has been made in this account of the course of the iron trade to give the reasons for the changes made. They are quite plain to all of us now, as they usually are after the event; but they were not sufficiently clear at the time to influence the judgment of those most interested. The chronic bears and the persistent bulls have both been right about half the time, and they can say with equal assurance, "I told you so;" but the man who correctly gauged all the ups and downs of this singular period has not been discovered, if, indeed, he really exists. If he does, another golden opportunity awaits him in forecasting the outcome of the present situation in the iron trade. The inquiry is anxiously made on all sides—Will prices now go lower, or will the fall months bring a heavier demand than ever before and cause them to mount upward?

The Accident to the City of Paris.

The result of the Board of Trade inquiry into the causes of the accident to the Steamship City of Paris has been published. The report is remarkable, since it forces the belief that the board considered conclusive the first impressions regarding the initial cause of the destruction of the engine, and, therefore, did not think it necessary to examine any other feature. The finding is also extremely unsatisfactory for other reasons which will appear. The Board expresses itself as follows:

We are of opinion that the primary cause of the casualty was the extraordinary wearing down of the ring in the bracket which supported the extreme end of the propeller shaft, by which the end had dropped from its proper position about 7 inches, thus producing a bending effort on the shaft at its forward support co-existent with each revolution of the engine. This probably produced a rupture of the external surfaces, gradually extending inward, and finally a total fracture; the engines thus relieved from all resistance beyond the friction of their own moving parts, would almost instantaneously acquire great velocity, probably sufficient to stretch the various connections until there was no clearance between the piston and cylinder cover of the low pressure engine. The cover was struck by the piston and broken off, the piston probably broken up in the act, the cylinder torn asunder, the condenser seriously broken, and the destruction of the various other parts rapidly accomplished.

The report justly states that the wearing down of the after bearing was of an abnormal character and is of infrequent occurrence. It then explains this wearing down by saying that "generally it may be said to have been attributed to one of two causes: one being that the gun metal casing of the shaft had burst; the other, that ashes had got into the bearing." It is held by the board that there is no steamship running whose outer shaft bearings are not subject to like conditions, and yet it fails to state that this is the first accident of the kind. In the passage quoted above, the remark concerning the stretching of the various connections resulting from the racing of the engines is ambiguous. If this means that the 12-inch piston rod and 14-inch connecting rod stretched sufficiently to permit the piston to strike the lower cylinder head, and thereby wreck the low pressure engine, then the question naturally arises: Why did not this high velocity produce the same results with the high pressure and intermediate engines which were practically unharmed?

Sir Frederick Bramwell, in his testimony, claimed that it would not be extravagant to suppose that the engines attained a speed of 320 revolutions after the shaft broke, and that the enormous strain thus brought to bear on the moving parts "caused the breaking of the nuts or bolts or caps, and the caps being broken, the whole thing would go." This is plausible if, as is most probable, it refers to the bolts holding the piston head to its rod, since a slight giving of these bolts would allow the piston to strike and demolish the top cylinder cover. The piston was conical and was held to the rod by bolts entering a collar formed on the rod, the piston being bored to permit the pas-

sage through it of the tail rod. The clearance was not more than half an inch, and as the connection between the piston and its rod was the weakest link in the chain, it probably gave way first and started the train of destruction.

We now reach one of the most important points brought out by the court and one which, it is strange to say, was not investigated at all. Each cylinder was supported on two A-frames, steel castings weighing 6 tons each. The report says: "The cracks in the cast steel columns, in our opinion, were caused by contraction in cooling, and were repaired by steel plates in a very efficient and workmanlike manner." If one of the frames of the low-pressure engine had broken as the first step of the accident, what might have resulted? Would the speed of the engine at that time—from 80 to 85 revolutions—have been sufficient to have so completely broken and bent the massive parts of the engine? Could the shaft then have broken at the point where it did? If this order could have been possible, the wearing down of the outboard bearing is explainable. The immense weight of the propeller would then cause a deflection of the short length of shaft supporting it, and the bearing would be subjected to an unevenly distributed load. The passage of the vessel through the water would revolve the propeller at normal speed at least, and the rapid destruction of the lignum-vitæ bearing would follow. It seems that this aspect of the case was worthy of some slight consideration. It is not apparent why the court ignored it entirely.

The report and the testimony combine in extolling the design of the boat and her machinery, the excellence of the material employed and the workmanship. In no way was the safety of the ship sacrificed to speed. This was in every sense unnecessary, as the accident itself tested and proved the great strength of the boat and rendered rather unseemly the indorsements brought forward. The only suggestions made by the report are embodied in the following quotation: "The court suggest as points worthy of the consideration of naval architects and marine engineers, and not as intended to make any comments of an adverse character on the City of Paris, the provision or invention of a governor that would control marine engines in case of similar breakdowns, the desirability of isolating each water-tight compartment as far as possible from the others, and the improvement of supports of outboard bearings and of long propeller shafts."

For the protection of the furnaces along its line, and of those for whom it hauls large quantities of raw material, the Pennsylvania Railroad has advanced the rates of freight on Southern iron. In other words, the railroad proposes to charge the same rates on its part of the haul to Central and Eastern Pennsylvania points as it does on local iron. This sounds fair, but it is hardly wise; nor does it evince a thorough grasp of the situa-

tion, because it neglects the most important interests. The company has taken hold of the matter at the wrong end. What would be more judicious would be to reduce the local rates on Pennsylvania iron to a parity of the figures until now granted as a pro rate on Southern irons. In its effort to take care of the producers of pig iron, the railroad has neglected the interests of the consumers, who indirectly are far greater revenue producers to the railroad than the furnaces. It will not take very much to convince quite a number of manufacturers of Eastern and Central Pennsylvania that they are likely to prosper more by emigrating to Virginia or even further South. The difficulty is not to be met by marking up rates on Southern iron. The consumer demands a lowering of local rates.

The Situation in Buenos Ayres.

The Argentine Republic is going through the vicissitudes attending an enormous expansion of paper currency, which becomes less in value in proportion to the amount issued. In April last the gold premium was 140 per cent.; last week it was 167 per cent., subsequent to the suspension of dividends by the National Bank. Despite this drawback of a vicious financial system, the country prospers to an extraordinary degree, and so long as no disaster comes all is well. With the aid of British capital, railroads extend far back into the interior, with prospects of connection not only with the Pacific coast, but far southward into the region formerly known as Patagonia. No less than 21 lines of steamships connect her ports with Europe, transporting beef and mutton to England by means of refrigerators for about what it costs the cattle grower in the United States to railroad his products to the seaboard. In a single month last autumn no less than 35,000 emigrants arrived in Buenos Ayres, as compared with 38,216 who arrived at the emigrant landing in New York during the month just closed. Respecting the financial condition of the Republic, a correspondent at Buenos Ayres, writing April 10, says:

When we remember how speedy has been the transformation of Buenos Ayres from her traditional drowsiness to present prosperity, and the lack of conservatism which is a Spanish characteristic, the present financial condition of the Government seems natural enough. Sudden good fortune turned the nation's brain, it would have nothing to do with prudence, each new Government undertaking was hailed as fresh evidence of enterprise, and the nation now finds itself in a situation which is at all times awkward—without money and without credit. The real cause of these troubles lies in the free (free and easy) banking system, which is as original as it is disastrous. Four years ago the Government established a banking system copied after that of the United States, with this difference, that banks may loan out their gold reserve, call the receipts for it their "gold" reserve, and still issue notes, which, therefore, consist of a promise to pay some other promise to pay some quantity of gold, which is practically out of sight and power of every bank. In the full enjoyment of this "freedom" banks have filled the people's pockets with issue after issue of paper currency—from 5 cent bills up—which is becoming worthless in exact proportion as more

are issued. At present gold is worth 240 per cent. It will probably continue to rise until paper loses all value, when the country will come back to a metallic basis with a crash similar to that in the United States in 1836. And, harmful although this must be, it can only check and cannot stop the country's growth. Her prosperity has been built upon no gas inflated boom; it stands and has grown upon a solid commercial basis, and the present condition is the fault solely of national idleness, poor planning and bad management.

It is from the Argentine that the American farmer fears the most competition in the export of grain and cattle. Even now the markets of England are glutted, making it impracticable to ship cattle from New York, excepting at a loss, and Chicago grain "corners" operating conjointly with cheap imported labor in South America—most of which is employed on the fertile pampas—make the prospects more dubious from year to year. Five years hence the artificial harbor building at Buenos Ayres, at a cost of \$30,000,000, will be completed, affording facilities at that port for handling cargo not surpassed by any of the ports in the United States.

The Possibilities of Africa.

Stanley speaks of the "vast scope and boundless possibilities of Africa." The London Times also discourses of her "magnificent possibilities." Africa at this moment rises foremost among questions that engage the attention of observers in Europe. While England and Germany are partitioning between them the choicest portions, France utters a growl of discontent that she is scarcely consulted. From the American standpoint, that modern hero, Henry M. Stanley, has had a grand success in prosecuting his recent African expedition, although his long absence in the deep forest gave rise to considerable uneasiness as to his safety.

The principal claimant to the territory explored and who would dispute the right of possession is Germany, mainly on account of her alleged possession of a strip of coast on Zanzibar, which also is assumed to carry with it, agreeably to some fiction of law, a claim to the "Hinterland," lying far back of the coast line, but on the same parallel of latitude. This gives rise to a perplexing question of boundaries, but a provisional agreement has been reached respecting all essential details as between the rival claimants, so that only the approval of the British Parliament and the Reichstag are needful in order to consummate the bargain. Then Africa will be mapped out anew. It may well be questioned whether history affords any parallel, in the long centuries of which we have any record, for territorial acquisitions of such magnitude costing so little. In one aspect the event is the sequel to the British invasion of the Soudan and its subsequent abandonment, in which case the slaughter of Hicks Pasha's 10,000 and the assassination of General Gordon at Khartoum must be reckoned as a part of the price.

Taking an exclusively commercial view of the matter, aside from any prestige arising from the audacity of the performance, what has been gained by this grand

coup on the Dark Continent? What is Africa worth? The trade of Zanzibar, we are told, amounts to \$10,000,000 per annum; also that the island of Zanzibar, irrespective of the Sultanate, has upon it a city of 100,000 inhabitants, and is the center of the whole trade of East Africa, being in constant communication with Bombay. The value of the concession of the coast territory of Witu, or Sultanate of Witu, as arranged with the Germans, may also be admitted, the effect being to secure for England undisputed sway between the first degree of south latitude and the borders of Egypt, along the whole of the country which lies to the south and west of the Italian Protectorate in Abyssinia and Gallaland, as explained by Lord Salisbury in a parliamentary paper. Then, as to the vast lake regions of the interior, some 650,000 square miles included within the sphere of British influence, Stanley may be permitted to speak for himself. In an address delivered at Manchester he said he could see enormous possibilities for enterprise to expand toward the north over the entire Nile valley, past Khartoum, Berber, down to Cairo and Alexandria. So when they come to reckon all the tribes of the Soudan now shut out from civilization by the Mahdists at Khartoum, and come to count all those tribes scattered over that territory between the Victoria Nyanza and Abyssinia, and all that beautiful pastoral country secured to them between Lake Albert Edward and Lake Victoria down to the Alexandrian Nile, 1 degree south latitude, he thought England should be proud of this acquisition. On another occasion Stanley said: "A spacious inland sealike Victoria is worth something more than mere words; it is worth a strong and eager struggle. On its shores are about 12,000,000 of docile, workable, teachable Africans. Uganda alone has 3,000,000, and I saw an army in 1876 of 200,000 warriors collected at the bidding of the monarch. All the labor that any British company would need can be obtained from Uganda for the construction of the railway, for the manning of the steamers, for the manning of the canoes in the navigation of these waters, and for carrying to further regions the blessings of commerce." The London Times, reviewing the entire provisional agreement with the Germans in reference to this new African Empire, expatiates in glowing terms: "We gain," the editor says, "a free hand in Zambesia, in the regions which the British South Africa Company is about to develop, and the future of which is so full of magnificent possibilities. We gain a free hand in Zanzibar, the center of Arab trade in Eastern Africa, in touch with the Red Sea, with Aden, with the mainland, and with Bombay. We gain a free hand on the head waters of the Nile, in the fertile regions of Uganda, and in the direction of Emin's equatorial province. All this, indeed, is for the future, perhaps for the distant future; but it is a bright and alluring prospect."

The Germans, on their part, will lose no time in utilizing their peaceful conquest

and magnifying its importance. Belgium, not to be eclipsed, proposes to put \$5,000,000 more into the Congo Free State, as a National loan. Thus, under the combined influence of European pressure, brought to bear upon the dark continent, the world will watch for the rising of a new civilization and the opening of new fields for commercial enterprise.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., July 14, 1890.

The Senators having come to a determination in their parliamentary complications, have, after caucus action, concluded to go on with the tariff bill as if they were not anticipating obstructive tactics on the part of the minority. If after a few days' general debate it becomes apparent that the discussion is not upon the merits of the question but for dilatory purposes, the caucus scheme of limiting debate will be applied. This will provide for a 30 minute, instead of the five minute rule as in the House, each Senator being allowed 30 minutes only for speeches on amendments. The previous question having been ordered the Senate will then vote upon fixing a time when a vote shall be taken. The Senate proposes not to do any more dodging, but to go ahead with its business and finish up as soon as practicable, beginning with the Tariff bill. There exists considerable opposition to the Senate amendments to the House Tariff bill, but these will be much modified, if not by the recommendations of the committee in the Senate, then in conference, where the two committees will so equalize the provisions of the House and Senate measures as to make them acceptable to both sides. It is doubtful whether any change will be made in the Senate on steel rails, as that is one of the most perplexing questions in the metal schedule, and one which the Western Republicans and all the Democrats are cranky upon. The Commissioner of Labor has completed a "Preliminary Report of the Cost of Production of Pig Iron, Steel, Ingots, Steel Rails, Iron Ore, Coal, Coke and Limestone." The publication is in the hands of the public printer, and will be ready for delivery to the Senators and Representatives during the coming week. In giving the cost of production, the Northern and Southern districts of the United States and Belgium, France, Germany and Great Britain are represented. The valuable data is distributed under the heads: Establishment, Number, Locality, Period, Covered, Quantity of Product, Proportion of Materials Used and Elements of Cost, 1 ton being the unit of measure. The tabulated data is based upon authoritative information from establishments.

In the office of the Chief of Ordnance of the Navy Department has been placed a 100-pound steel piercing projectile, treated by the Redemann-Tilford process. The naval experts have become quite enthusiastic over the specimen. In the building of armored and steel ships the naval authorities have been somewhat anxious in the matter of projectiles, as England, France and Germany have made great advances in that direction. It was stated by one of the experts that in producing steel projectiles the difficulty has always been in procuring a steel with sufficient tensile strength and elastic limit to sustain the impact when the projectile comes in contact with the steel armor at a velocity of 2100 feet per second. He added that thousands of dollars had been expended in the United States and foreign countries in experiments in this line. The Redemann-

Tilford people have about convinced the Government that the projectiles treated by their process has no equal in their knowledge. It has been shown by tests to have more tensile strength and elastic limit, and will penetrate further than the St. Chamond, Pilsener or Holtzer, or any of the best known projectiles. Under the direction of Col. C. W. Hayes, the general manager of the company, the Government tests at Annapolis and the Naval Arsenal at Washington have been supplemented by similar tests by the Bethlehem Iron Works, and still more recently by the Troy Iron and Steel Works.

The Bethlehem tests represent four test pieces, cut from the same bar of steel. The specimens were marked Nos. 1, 2, 3 and 4. No. 1 was broken to get original physical condition of the steel; No. 2 was treated by the Redemann-Tilford process for the best amount of tensile strength; No. 3 treated by process for tensile strength and elastic limit; No. 4 for tensile strength, elastic limit, elongates and reduction.

	Tensile strength.	Elastic limit.
No. 1, untreated	80,000	53,000
No. 2, treated, R. T. S.	214,000	.....
No. 3, treated, R. T. S.	187,000	120,000
No. 4, treated, R. T. S.	98,300	63,000
Elongates, 53.21; reduction, 57.77.		

Roofing tools were made by use of this process from 45 carbon Bessemer, and finishing tools from 70 carbon Bessemer. Laminated metal, 5 thickness, steel and soft iron, was successfully rolled and welded without the use of flux, in sheets any thickness required.

The Redemann-Tilford Company are fast getting their operations under way. The Pennsylvania Steel Refining Company, with headquarters in Philadelphia, have secured rights for New York, New Jersey, Pennsylvania, Delaware and Maryland; another has the six New England States; another controls Illinois, Ohio, Michigan and Indiana. The Union Iron Works, of San Francisco, have secured the privileges for the Union Iron Works.

The Government is experiencing some trouble under the Congressional limitations to prices to be paid for vessels for the navy in getting bids for the three steel steam tugs for use in the naval service. The \$35,000 apiece limit, to include full equipment and Government tests, is regarded as too small a figure, taking the exacting specifications into consideration. The naval authorities are now proposing the usual mercantile tests, and are now ascertaining whether the tug builders will bid under such terms. The Government is anxious to have these useful vessels built as soon as possible, but the builders wish to see some margin on their side and not all leaning to the Government.

The Radford Crane Iron Company break ground this week for their 18 x 75 Furnace at Radford, Va. The officers of the company are H. W. Hazard, of Philadelphia, president, and W. S. Pilling, of Philadelphia, secretary and treasurer. Frank C. Roberts, civil engineer, Philadelphia and Pittsburgh, has been engaged as engineer for the company, and will prepare all plans, specifications, &c., as well as supervise the construction both in the shops and in the field.

The opinion of experts summoned to testify concerning the recent fatal colliery explosion at Dunbar, Pa., is that the present laws governing inspection are sufficient to prevent disasters if enforced.

The Vessel Owners' Association, of Cleveland, Ohio, has decided to discharge all union men, and is filling their places with imported men from the East. A big strike among all classes of lake employees is imminent.

TRADE REPORT.

Chicago.

Office of *The Iron Age*, 50 Dearborn street, CHICAGO, July 16, 1890.

(By Telegraph.)

The heavy volume of business in progress for the past 60 days has imparted a healthy tone to the market and a very hopeful view is now taken of the future. The trade has recovered most thoroughly from the spring depression, and the last half of the year is expected to prove very satisfactory both as to prices and demand. The farming interests of the Northwest are in better shape than they have been for years. Abundant harvests are reported from every section and enforced economy is no longer the rule. The demand for building material is particularly heavy, showing that improvements are being made on a large scale. Conservative men now regard our heavy production of iron with less fear, believing that the capacity of the country will be well engaged to meet the inevitable increase in consumption. A significant sign of the times is the scarcity of labor. Employers state that not for years have they had so much difficulty in securing the hands they need. Pig Iron is less active, as consumers are pretty well supplied, yet some houses have managed to secure a very fair line of orders within the past few days. Strong Coke Foundry has probably been least in demand. Ohio Softeners have been sought for, and furnace companies in a position to take orders have secured considerable business at ruling rates. Southern Coke has been quiet, and rumors are in circulation that concessions are offered to induce buyers to take hold. Lake Superior Charcoal has been sold in good sized lots, and has probably absorbed a larger share of attention than other qualities of iron. Competition in some instances caused prices to be shaded a trifle, but in the main they have been well sustained. Taking the Pig Iron situation as a whole, there are no pronounced elements of weakness, and it looks as though values might remain about as they are during the usual summer quietude. After that prices will depend on the demand for more finished products, which at present promises to be very heavy. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal.....	\$19.50 @ \$20.00
Local Coke Foundry, No. 1.....	16.50 @ 17.00
Local Coke Foundry, No. 2.....	16.00 @ 16.50
Local Coke Foundry, No. 3.....	16.00 @ 16.50
Bay View Scotch.....	16.50 @ 17.00
Am. Scotch (Strong Soft), No. 1.....	19.75 @ 20.50
Jackson County, Soft and Silvery, No. 1.....	18.00 @ 18.50
Southern Coke, No. 1.....	16.50 @ 17.00
Southern Coke, No. 2.....	16.00 @ 16.50
Southern Coke, No. 3.....	15.50 @ 16.00
Southern, No. 1, Soft.....	16.00 @ 16.50
Southern, No. 2, Soft.....	15.00 @ 15.50
Southern Gray Forge.....	15.00 @ 15.50
Southern Mottled.....	14.00 @ 14.50
Tennessee Charcoal, No. 1.....	19.00 @ 19.50
Missouri Charcoal, No. 1.....	18.50 @ 19.00
Alabama Car Wheel.....	22.50 @ 24.00

Bar Iron.—Bar Iron is firm and exhibits signs of an upward tendency. Car builders are in the market for bids to cover orders for cars, but are unable to get prices down to the level lately ruling. It is understood that in this way 1.77½¢ flat Chicago was quoted on 2000 tons, but the mill refused to take more at the same price. Others quote 1.80¢ @ 1.85¢ on such orders. Sales have been made of considerable quantities at 1.80¢ @ 1.85¢ Chicago half extras, and much more business is in sight. Youngstown mills are now working up to 1.75¢, at mill. Jobbers have advanced their bottom rate to 2¢, full extras, naming 2.10¢ @ \$2.20¢ for small lots.

Structural Iron.—Structural Iron continues to move actively and prices are steadily stiffening. The following quotations prevail on carload lots, f.o.b. Angles, 2.30¢; Tees, 2.75¢ @ \$2.80¢; Beams, 3.20; Universal Plates, 2.45¢ @ 2.55¢; Car Truck Channels, 2.50¢. Beams sell from store in small lots at 3.70¢, but Angles and Tees at 10¢ @ 15¢ @ 100 above carload prices.

Plates, Tubes, &c.—Plates are in urgent demand from all classes of consumers, and mills are pressed to make better deliveries. New business is mainly of a retail character, but the volume is very large. Tubes are firm, prices are unchanged, but very stiff. Nos. 10 to 14 Iron Sheets, 2.80¢ @ 2.90¢; do., Steel, 3¢ @ 3.10¢; Tank Iron, 2.65¢ @ 2.75¢; Steel, 2.85¢ @ 2.95¢; Shell Steel, 3.25¢; Flange Steel, 3.50¢; Fire Box Steel, 4.50¢; Rivets, 4¢ @ 4.25¢; Norway Rivets, 40¢ off; Tubes, one three-quarter and less, 40 % off; two to four and a half, 50 % off; larger, 52½ % off.

Merchant Steel.—The market is comparatively dull. Large buyers are holding off trying to get lower prices, as they are disinclined to pay from \$2 to \$5 per ton more than last year. Mills are quite firm, however, and insist that no concessions will be made. There are fewer bidders than usual on these large season contracts, as those who have had them in the past have not always found them a source of profit. Tire Steel, 2.40¢ @ 2.50¢ rates; Open Hearth Spring and Machinery, 2.50¢ @ 2.75¢; Bessemer Machinery, 2.25¢ @ 2.30¢; Crucible, 3.50¢; Tool Steel, 7¢ and upward; Crucible Sheets, 7¢, 8¢ and 10¢.

Galvanized Iron.—Galvanized Iron continues very active, and complaints are frequent of slow deliveries by the mills. Manufacturers' prices are now higher than jobbers' quotations. The latter still sell small lots of Juniata at 65 % off. Black Sheets are quoted at 3¢ at mill for No. 27, and 3.30¢ @ 3.40¢ in small lots from store.

Steel Rails.—Trade is active, and large orders are being entered for future delivery. Prices are firm and again manifest an upward tendency. Quotations now range from \$34 to \$35 according to quantity, time of delivery, &c. Good orders for Splice Bars have been taken by local sellers, who quote Iron at 2¢ @ 2.05¢, and Steel at 2.25¢. Spikes are firm in sympathy with higher prices of Old Rails and \$2 is probably bottom. Track Bolts with Hexagon Nuts 3¢.

Old Rails.—Old Iron Rails are again higher. A sale of 1000 tons was made at \$26.25, and another of several hundred tons is reported at \$26.60. Old Steel Rails sell at \$21.50 @ \$22 Long Lengths, and \$19 Short Pieces. Car Wheels are in somewhat better demand and not in large supply, being quoted at \$19.25 @ \$19.50.

Scrap.—Scrap seems to be less in demand and prices are slightly off. The shutting down of so many rolling mills has temporarily decreased consumption, but the supply is not great enough to affect prices seriously. We quote: No. 1 Railroad, \$21; Forge, \$20; Mill, \$16; Machinery Cast, \$13; Borings, \$9; Pipes and Flues, \$14.50; Light Iron, \$11; Stove Plate, \$10.50; Wrought Turnings, \$13; Axle Turnings, \$13.50; Horse Shoes, \$19.50; Car Axles, \$25.50; Mixed Steel, \$14.25; Coil Steel, \$18; Leaf Steel, \$19; Tire Steel, \$20.

Pig Lead.—The market recovered from the reaction of the previous week, and chemical sold at 4.40¢ @ 4.45¢. Desilverized has been scarce at 4.50¢ asked, and most refiners are bare of stock. Although but small sales were made, the market closed firm.

The co-partnership heretofore existing under style and firm name of Green & Schimberg, in the wholesale Scrap Iron and Metal business, was on the 8th instant dissolved by mutual consent. Wm. Schimberg has purchased the business of the old firm, and will pay all liabilities and collect all debts and accounts due the above firm. The latter will hereafter do business under the firm name of Wm Schimberg & Co., with an office at 225 Dearborn street, Room 511, Temple Court Building, and a large yard at Fortieth street and Stewart avenue, where they have tracks running into the yard. Having direct connections with all the leading railroads in Chicago, with free switching by all of them, they are enabled to handle stock at a very small margin, and conduct their business on a much larger scale. They also have a branch yard at 112 and 114 West Harrison street for the accommodation of their city patrons.

Philadelphia.

Office of *The Iron Age*, 230 South Fourth St. PHILADELPHIA, Pa., July 15, 1890.

There is no important change to notice in the iron trade at present. Business has not been fully resumed, largely because of the unsettled condition of labor. Manufacturers think they ought to secure an advance in selling prices, but buyers yield very unwillingly. The demands of the men, if complied with, mean higher cost for the product, so that 2½¢ @ 5¢ advance would be more than absorbed by the advance in labor. Hence it is that while there is no urgent demand for Finished Iron, manufacturers are afraid to accept figures that would bring them business, while buyers are just as indisposed to meet the conditions proposed by the selling interests. The outcome of events during the next few days is therefore likely to be important, as some decision must be made before business can be resumed with any degree of confidence. All that can be positively said at present is that manufacturers are asking about a tenth advance; but as yet buyers have not responded, unless under exceptional circumstances.

Pig Iron.—The market looks a trifle better as regards demand, but there is no improvement in prices. Large sales could be made at concessions of 25¢ @ 50¢ per ton, but lots of that kind have been pretty well cleaned up, and it is difficult to secure any good brand of mill iron at less than \$15.25 @ \$15.50, delivered. Bids of \$15 for 5000-ton lots have been declined, and at \$15.25 there is no great supply available, so that with anything like a good demand it would not be difficult to push prices a little higher than they have been for the past two or three months. Large blocks of low priced (part cylinder) Irons have been taken at a trifle over \$14, delivered, and a fair business in all Ore Irons has been done at quoted rates; but there is nothing to indicate any special departure from the dead level of monotony which has characterized the trade for several weeks past; although, as we have intimated, the chances are more in favor of an improvement than otherwise. Foundry Irons are quiet, and for the time being a little inclined to droop, but there is no undue urgency to realize. Strictly desirable brands command \$18 @ \$18.25 for No. 1 Foundry, but occasional lots can be met with at 25¢ @ 50¢ less; all depends on what the Iron is, and how anxious the seller is to get his money. On the whole it may be said that the market is waiting developments, slightly nervous at the moment, but in good shape to stiffen up on any moderate movement on the part of buyers. Some radical changes in freights on Southern Irons have been made by the Pennsylvania Railroad, and some people think it will be of immense benefit to the

Pennsylvania Iron trade. But will it have that effect? Southern Iron will be sold somewhere, and if it cannot be brought into Pennsylvania, what is there to hinder it from competing all the more strongly at other points—say, in New York and the Eastern market. The price of Iron, like water, will find its own level. Then there are the consumers of Pig Iron to be considered. What will become of their markets if they are handicapped in the price of raw material? Anything that will be helpful to the trade will be heartily welcomed, but it is by no means certain that an advance in freights will be of general benefit, although it may be so in individual cases.

Bessemer Pig.—No business to report at present. Holders are getting anxious, and to encourage trade would probably accept \$19 @ \$19.50, at furnace, for moderate quantities, but there is no disposition to make offers, although deliveries on old contracts are being taken without much delay.

Spiegeleisen.—Nothing doing. Prices are nominal at from \$31 @ \$32, for 20 %, duty paid, and about \$75 for 80 %, Ferro-Manganese.

Steel Rails.—The improvement noted a week ago is fully maintained, and while no very large sales have been made, manufacturers find themselves full of work, with very satisfactory prospects for its continuance. The usual asking price for large lots is \$32 at mill, but on small orders \$32.50 @ \$33 is required. Mills are very full up to the middle of September, so that prices are likely to show a firm front, with some possibility of still higher figures if the demand continues.

Steel Billets and Slabs.—Slabs for Nail purposes are entirely beyond the reach of consumers; hence there is no business to report. Neither is there much to say in regard to Billets, as both buyers and sellers have supplied their wants for some time to come. Nominal prices, however, would be about \$33.50, delivered, for 4 x 4 Billets, although a little extra desire to either buy or sell would easily lead to 50¢ or \$1 of a change in prices.

Muck Bars.—Business has been held in abeyance by the sudden change in temperature, and the consequent difference in the estimate of values by buyers and sellers. Many holders quote \$29 @ \$29.50 at mills, while the best bids from buyers would be at about those figures delivered, or say \$28.25 @ \$28.75 at mills. No recent sales, so that prices are nominal, as above stated.

Bar Iron.—There is very little demand, and no change in prices. A few large orders would easily stiffen the market, but for the present there is only a hand-to-mouth demand. Manufacturers have been hoping for a chance to advance prices, but in the present condition of affairs there is nothing to warrant any movement of that kind, hence business is being done at from \$1.80 to \$1.85, according to size and character of order.

Skelp Iron.—Several sales have been made during the week, and in most cases at an advance on prices recently ruling. Grooved is quoted at \$1.75 @ \$1.80, delivered, and Sheared at 2¢ @ 2.1¢, with sales at medium figures.

Plates.—There is a fair demand for Plates of all descriptions, and prices are about a half-tenth higher than those ruling a week ago. Manufacturers quote a tenth higher, and in some cases they hold for the full advance, but in others orders have been placed as above stated at a half-tenth higher.

	Iron.	Steel.
Ship Plates.....	2.15 @ 2.20¢	2.30 @ 2.40¢
Tank.....	2.15 @ 2.20¢	2.35 @ 2.45¢
Bridge Plate.....	2.20 @ 2.25¢	2.40 @ 2.60¢
Shell.....	2.40 @ 2.50¢	2.60 @ 2.70¢
Flange.....	3.00 @ 3.15¢	2.80 @ 3.00¢
Fire-Box.....	3.75¢	3.75 @ 4.25¢

Structural Material.—There is a very fair demand considering the general position of the market, and prices have something of an upward tendency. Manufacturers ask as a tenth advance on Plates and T's, and it would be difficult to place orders unless at the advance named. Mills well employed with a very encouraging outlook for the near future. For lots delivered in consumers' yards quotations are about as follows: 2.20¢ @ 2.25¢, delivered, for Sheared Plates; 2.20¢ @ 2.25¢ for Angles, with 15¢ @ 25¢ more for the same in Steel; Tees, 2.6¢ @ 2.7¢; Beams and Channels, 3.1¢ for either Iron or Steel.

Sheet Iron.—The demand for light sheets is remarkably active, and mills find it difficult to make deliveries as promptly as desired. Prices are firm and for carload lots of the best makes are quoted as follows:

Best Refined, Nos. 14 to 20.....	3.00¢ @ 3.10¢
Best Refined, Nos. 21 to 24.....	3.20¢ @ 3.30¢
Best Refined, Nos. 25 to 28.....	3.40¢ @ 3.50¢
Best Refined, No. 27.....	3.50¢ @ 3.60¢
Best Refined, No. 28.....	3.60¢ @ 3.70¢
Common, ½¢ less than the above.	
Best Soft Steel, Nos. 14 to 20.....	3½¢ @ 3½¢
Best Soft Steel, Nos. 21 to 24.....	3¾¢ @ 3¾¢
Best Soft Steel, Nos. 25 to 28.....	3¾¢ @ 3¾¢
Best Soft Steel, No. 27.....	4¢ @ 4½¢
Best Bloom Sheets, 1-10¢ extra over the above prices.	
Best Bloom, Galvanized, discount .00 @ 62½ %	
Common, discount.....	.62½ % @ 67½ %

Old Rails.—Nothing doing in spot lots, holders' ideas being very much beyond what buyers are willing to pay. Small lots sell at \$25.50 @ \$26, delivered in the interior, with buyers at about \$24.75, Philadelphia.

Scrap Iron.—There is a good demand, and sales easily made at prices recently ruling, viz: No. 1 Wrought, \$21.50 @ \$22 Philadelphia, or for deliveries at mills in the interior, \$22 @ \$23; \$16 @ \$17 for best Machinery Scrap, \$15 @ \$15.50 for ordinary, \$15.50 @ \$16.50 for Wrought Turnings, \$11 @ \$11.50 for Cast Borings, \$25 @ \$27 for Old Fish Plates, and \$17 @ \$18 for Old Car Wheels.

Wrought Iron Pipe.—The situation remains unchanged since our last report. Mills continue to be crowded with orders, and find it difficult to meet all requirements promptly. Discount as follows: Butt-Welded Black, 47½ %; Butt-Welded Galvanized, 40 %; Lap-Welded Galvanized, 47½ %; Lap-Welded Black, 60 %; Boiler Tubes, 1½ inches and smaller, 45 %; Boiler Tubes, 2 to 4 inches, 50 %; Boiler Tubes, 4½ inches and larger, 52½ %; Oil Well Casing, 50 %.

Cincinnati.

(By Telegraph.)

Office of The Iron Age, Fourth and Main Sts., }
CINCINNATI, July 16, 1890. }

Pig Iron.—There is scarcely a new feature in the local market for Pig Iron. Dullness has continued the most prominent factor, but while a light trade has been associated with an easing feeling, there has been less disposition than during the preceding week to make lower prices. In fact, a number of small sales have been made at full values, and the few large transactions which have been consummated also show a tendency to realize the limit of the market, which has not been disputed with buyers. As a rule, the run of orders has been mainly for carload lots, but there have been a number of moderate sized orders, say 100 to 300 tons, too, and during the past few days several lots of 1000 and 2000 tons have been placed. The small orders are taken with a demand for prompt delivery, but the large orders are booked for delivery during the fall and up to the first of next year. Inquiries are more numerous, if not more urgent, and indicate a more active trade at the close of

the summer months. Southern furnaces are well sold ahead, while Northern stocks pursue the policy of selling only the iron in sight. Mills in this vicinity report the booking of orders far in excess of ability to meet for 30 to 60 days' time. Foundries are less fully supplied, but for this season of the year all industrial plants are well employed, and as the July settlements are about completed and the weather less excessively warm, business will soon be resumed with added vigor. At the moment we learn of the sale of 1000 tons Southern No. 3 Foundry at \$11, at furnace, spot cash. This indicates a slight decline from prices previously current, but this is the only grade upon which sellers indulge a desire to realize by accepting lower prices. We quote:

Foundry.		
Southern Coke, No. 1.....	\$15.25 @	\$15.75
Southern Coke, No. 2.....	14.75 @	15.00
Southern Coke, No. 3.....	13.75 @	14.00
Ohio Soft Stone Coal, No. 1.....	17.00 @	17.50
Ohio Soft Stone Coal, No. 2.....	16.00 @	16.50
Mahoning and Shenango Valley.....	17.00 @	17.50
Hanging Rock Charcoal, No. 1.....	21.00 @	22.00
Hanging Rock Charcoal, No. 2.....	19.50 @	20.50
Tennessee and Alabama Charcoal, No. 1.....	17.50 @	18.50
Tennessee and Alabama Charcoal, No. 2.....	18.00 @	18.50
Forge.		
Gray Forge.....	13.50 @	13.75
Mottled Neutral Coke.....	13.00 @	13.25
Car Wheel and Malleable Irons.		
Southern Car Wheel.....	22.50 @	23.25
Hanging Rock, Cold Blast.....	22.00 @	22.50
Lake Superior Car Wheel and Malleable.....	21.50 @	22.00

Detroit.

WILLIAM F. JARVIS & Co., under date of July 14, 1890, say: Since our last report there has been very little change in the market. What sales have been made have mostly been of Southern Foundry grades. Lake Superior Charcoal remains unchanged. Several small orders have been taken, but on account of very large sales last month there have been no deals of any magnitude during the week. With prices firm and a quiet market we repeat our quotations:

Lake Superior Charcoal, all numbers.....	\$20.50 @	\$21.00
Lake Superior Coke, Bessemer.....	20.00 @	21.00
Katahdin (Maine Charcoal).....	24.00 @	25.00
Lake Superior Coke Foundry, all ore.....	19.25 @	20.75
Southern No. 1.....	17.00 @	17.50
Southern Gray Forge.....	15.25 @	15.50
Jackson County (Ohio) Silvery.....	19.00 @	19.50

W. F. Jarvis & Co. have been appointed agents of A. & P. Roberts & Co., Pencoyd Iron Works, Philadelphia, for Beams, Structural Iron, Shafting, &c.

St. Louis.

OFFICE OF The Iron Age, 214 N. Sixth st., }
ST. LOUIS, July 14, 1890. }

Pig Iron.—There is no perceptible change in the general condition of trade so far as this department is concerned. The demand has been only moderate, but prices have been generally adhered to. The market exhibits considerable strength. There have been no cut prices made, notwithstanding the fact that demand has been light, so much so perhaps, that it would justify the naming of lower prices to obtain business. Furnaces, however, appear to be quite anxious to sustain the market, and are refusing to book orders for delivery extending through the next three or four months, and thus tie up their product and consequently be unable to take advantage of any advance in prices. Consumers as a rule pay the prices now ruling without any particular haggling, as they are all busy and need the iron to keep their plants in operation. No. 1 Foundry is scarce, and \$16.25 f.o.b. St. Louis, is quoted as bottom. Sales during the week under review, as stated above, have been small, but there are inquiries on hand that

point to an early return of activity. We quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	\$16.00 @ \$16.25
Southern Coke, No. 2 Foundry,	15.50 @ 15.75
Southern Coke, No. 3 Foundry,	14.75 @ 15.00
Gray Forge.....	14.25 @ 14.50
Southern Charcoal, No. 1 Foundry.....	18.25 @ 18.75
Southern Charcoal, No. 2 Foundry.....	17.25 @ 17.75
Missouri Charcoal, No. 1 Foundry.....	17.75 @ 18.25
Missouri Charcoal, No. 2 Foundry.....	17.00 @ 17.50
Ohio Softeners.....	18.50 @ 19.00

Bar Iron.—Many of the mills are filled with orders that they cannot quote on delivery earlier than September. The demand is large and prices are firmly adhered to as follows. Lots from mill command from 1.80¢ to 1.85¢. Small lots from store are quoted at 2¢.

Barb Wire.—The usual midsummer lull in demand is now being experienced, and mills are taking advantage of this period of dullness to make changes and improvements in their plants. The market is strong at 2.85¢ @ 2.95¢ for lots of Painted from mill, with 60¢ additional for Galvanized.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts.,
CHATTANOOGA, July 14, 1890.

Pig Iron.—While the condition of the market is not far removed from what it was at the time of the last report, it is evident that there is not the same vigorous activity that prevailed two or three weeks since. To all appearances, however, the furnaces are receiving about the same amount of orders and inquiries as usual, and are getting about the same prices as they have been; yet there appears to be a general activity prevailing that shows little falling off in general business. The demand for No. 1 principally, and also for No. 2, is quite active, and Gray Forge also comes in for considerable demand. The prospect seems to grow brighter for an increased consumption of Southern Pig from local concerns. All the foundries are running full, and it is no exaggeration to state that a great many new foundries are in course of erection, as well as many in the prospective. The demand for our Iron in the West is now very great; somewhat more so than the Eastern demand. Judging from present appearances, it is thought that the condition of the market will change but very little during the balance of the year. The different lines leading North and West have issued a new rate sheet, which, however, differs but very little from that already extant.

Cleveland.

CLEVELAND, July 14, 1890.

Iron Ore.—The lake carriers are still bringing down the new Ore in enormously large quantities, receipts at lower lake ports being about 700,000 tons in advance of last season's record at a corresponding date. Very little is being done in the way of transactions, although some demand is reported for both Bessemer and Non-Bessemer. Prices are none too firm, and quotations would be shaded if any substantial sales were to occur. The damages sustained by the Ore hoisting machinery on the local docks by last week's storm were sufficient to seriously delay shipments to Cleveland and to affect the total receipts of this port. Mine owners still insist that the Ore output for 1890 will considerably exceed 8,000,000 tons, if, indeed, the 8,500,000 mark is not reached. It is also claimed that the Non-Bessemer Ores not already bargained for will be sold before August 15. Additional vessel charters are reported at \$1.20 from Ash-

land and Two Harbors, \$1.10 from Marquette and 85¢ from Escanaba.

Pig Iron.—The market is comparatively lifeless, many of the furnaces being still inactive and with neither buyers nor sellers seemingly very anxious to make a move. It is asserted on every hand that the outlook for an excellent trade in September and October is good. Several of the furnaces now idle will be kept busy for six weeks or two months after resuming operations in filling old orders. Lake Superior Charcoal Iron has been sold in small quantities at \$20.50 and Coke Irons seem in good favor. The elements of weakness noted here and there are attributed to the excessively warm weather and the general apathy prevailing business circles everywhere. There have been no material changes in quotations.

Old Rails.—The market is very quiet, but prices are advancing steadily, something like \$27 @ \$27.50 being demanded. Old Wheels at \$19 are in slight demand.

Scrap.—Very few transactions are reported, although quotations are fairly firm at \$21 @ \$21.50 for No. 1 Railroad Wrought; \$15 @ \$15.50 for Wrought Turnings, and about \$15.50 for Cast Scrap.

Manufactured Iron.—There is a good demand for Bar Iron at 1.70¢ at the mills.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building,
PITTSBURGH, July 15, 1890.

Pig Iron.—Brokers and furnacemen all report business as being very quiet. A number of mills have been stopped since July 1, taking stock and making repairs, but they will shortly start up again, and as nearly all consumers are low in stock, there is every reason to believe that they will be on the market before long. Many of the puddlers and other mill workers would like to have the mills shut down during July and August. There was a sale of Bessemer made at \$18, cash, from 50¢, to \$1, under the market, but it had to be moved and the owner thought it better to accept the price rather than incur the expenses of storage, transportation, &c. We quote prices as follows:

Neutral Gray Forge.....	\$15.25 @ \$15.50, cash.
All Ore Mill.....	16.00 @ 16.50
White and Mottled.....	14.50 @ 15.00
No. 1 Foundry.....	17.25 @ 17.50
No. 2 Foundry.....	16.25 @ 16.50
No. 2 Charcoal Foundry.....	21.50 @ 22.00
Bessemer Iron.....	18.50 @ 19.00

Muck Bar.—There is a fair and increasing demand, and, while prices remain unchanged at \$29 @ \$29.50, cash, the market is firmer. The high price of Old Nails is expected to increase the demand, as it is contended that to the consumer Muck is now the cheaper of the two. One of our largest buyers says that he has been unable to find sellers under \$29. Moreover, the intensely hot weather will tend to increase the demand.

Manganese.—Sales of 80 % Ferromanganese at \$72.50 @ \$73.50, at seaboard, according to character and delivery.

Manufactured Iron.—There is an increased demand reported for all kinds of finished Iron, and the outlook is favorable for an active fall trade. Even now some of the mills are well sold up. Prices remain as last quoted: Bars, 1.80¢ @ 1.85¢, 60 days, 2 % off for cash; Plates, 2.15¢ @ 2.25¢; No. 24 Steel, 2.85¢ @ 2.90; Skelp, 1.80¢ @ 1.85¢ for Grooved and 2.10¢ @ 2.15¢ for Sheared. It is said that contracts for some 40,000 tons of Skelp Iron have been placed recently.

Structural Iron.—There is an increasing demand. Mills here are well employed, and no doubt the same is true elsewhere. Prices remain unchanged. Angles, 2.15 @ 2.20¢; Channels and Beams, 3.10¢; Tees, 2.75¢; Steel Sheared

Bridge Plates, 2.65¢ @ 2.75¢; Universal Mill Plates, Iron, 2.30¢; Refined Bars, 1.90¢ @ 2¢.

Steel Plates.—There is a continued fair demand, but no recent change in prices. Fire Box, 4½¢ @ 4½¢; Shell, 3¢; Flange, 3.15¢ @ 3.20¢; Tank, 2.75¢.

Merchant Steel.—Manufacturers report continued activity at unchanged prices. Tool Steel, 8¢ and upward; Crucible Spring Steel, 4¢; Open Hearth Steel, base sizes, 2½¢; Crucible Machinery, 4½¢; Bessemer Machinery, 2.35¢ @ 2.40¢; Tire Steel, 2.50 @ 2.60.

Nails.—There is not much doing here. Steel Cut Nails are now quoted by Wheeling manufacturers at \$1.90, 60 days, 2 % off for cash, in car lots, at which price a lot of 1000 kegs was reported sold to go to Milwaukee. Iron Nails are being sold at from 10¢ to 15¢ per keg below Steel Nails, and the demand for the former is said to be increasing. Wire Nails, owing to the increased cost of Wire Rods, are higher, and we now quote at \$2.35, 60 days, 2 % off for cash.

Wrought Iron Pipe.—There is an increasing demand; mills are all busy, some of them considerably sold ahead, and the indications are that this will continue until the advent of the winter season. No change in prices. Discounts on Black Butt Weld Pipe, 47½ %; on Galvanized ditto, 40 %; on Black Lap Welded, 60 %; on Galvanized ditto, 47½ %; Boiler Tubes—1½-inch and smaller, 45 %; 2 to 4-inch, 50 %; 4-inch and larger, 52½ %; Casing, all sizes, 50 %.

Old Rails.—The market continues firm, with a sale of 1000 tons reported at \$27. From sources of supply West, they could not be laid down here under \$27.50 @ \$28, but there have been no sales here as yet above \$27, and one of the largest consumers here, it is said, has not paid above \$26.20. Old Steel Rails, in the absence of sales, may be quoted at \$21 @ \$21.50 for short, and \$22 @ \$23 for long pieces.

Wire Rods.—The inquiry noted in our last report continues, and brokers report that they are unable to find any mill in position to sell for delivery during the next two or three months. Some mills are having labor troubles, while other mills are broken down. Consumers are urgent, and some of them say they will have to shut down soon if not able to get a supply of Rods. There have been no sales reported for several weeks. It is believed that for immediate or near-by delivery, \$45.50 @ \$46 could be obtained, as some consumers require stocks badly and would pay a stiff price rather than shut down their works.

Billets and Slabs.—There is a fair business, but no change in prices; \$31 at makers' mill appears to be the ruling price, although one of our largest manufacturing firms report that as yet they have been unable to sell any round lots above \$30½; Nail Slabs usually 50¢ per ton higher than Billets.

Steel Rails.—It is difficult to place an order here for delivery during this month or next, as both of the mills are sold up for the time in question; fall and winter deliveries are still being selected, and orders could probably be placed at \$31 @ \$31.50 @ \$32 cash, on cars at mill.

Railway Track Supplies.—Spikes are quoted at \$2.10 @ \$2.15, 30 days, on cars at works. Large lots will be delivered any place at \$2.10 where the freight rate does not exceed 20¢. Splice Bars and Track Bolts same as quoted for some time past.

Old Material.—There is a fair demand; prices unchanged. Sales of No. 1 Wrought Scrap at \$21 @ \$21.50, net ton; Cast Scrap at \$16, gross; Steel Bloom Ends, \$21 @ \$21.50, gross; Old Iron Car-

Axles, \$28, net ton. Nothing doing in Wheels: nominal at \$18 @ \$19.

Coke.—There is nothing new to note, except continued scarcity of cars. No change in prices, as follows: Blast Furnace Coke, f.o.b. at ovens, \$2.15; Foundry Coke, \$2.45; Crushed Coke, \$2.65 per ton of 2000 lb. Prices at other points are as follows:

	Foundry Coke.	Crushed Coke.
On Cars at Boston and points taking Boston freight rates.	\$6.45	\$6.65
On cars at Baltimore.....	4.62	4.82
On cars at Buffalo.....	4.70	4.90
On cars at Cleveland.....	4.15	4.35
On cars at Cincinnati.....	5.10	5.30
On cars at Toledo.....	4.80	5.00
On cars at Detroit.....	4.80	5.00
On cars at East St. Louis....	5.65	5.85
On cars at St. Louis.....	5.80	6.00
On cars at Chicago.....	5.20	5.40
On cars at Milwaukee.....	5.30	5.50

Freight rates from the regions are as follows:

To Pittsburgh.....	\$0.70
To Mahoning and Shenango valleys.....	1.35
To Cleveland, Ohio.....	1.70
To Buffalo, N. Y.....	2.25
To Detroit, Mich.....	2.35
To Cincinnati, Ohio.....	2.65
To Louisville, Ky.....	3.20
To Chicago, Ill.....	2.75
To Milwaukee, Wis.....	2.85
To St. Louis, Mo.....	3.35
To East St. Louis.....	3.20
To Baltimore.....	2.17
To Boston.....	4.00

(By Telegraph.)

The intense heat of the past couple of days has had a tendency to restrict business in Iron and Steel somewhat, but the outlook for near future was never better. Mills are nearly all busy, with output restricted by the heat. There is an increased movement in Foundry Iron. Sales 1000 tons, No. 1, All Ore Foundry, at \$17.50, cash, at Valley Furnace, equal to \$18.30, Pittsburgh; also 200 tons do. at \$18.50, cash, at Pittsburgh, and 300 tons No. 2, do. at \$17.30, cash.

Louisville.

LOUISVILLE, KY., July 14, 1890.

Pig Iron.—The market has been very quiet with few sales, and will probably continue dull during the month. As soon as the mills that have been shut down, owing to the heat and for making repairs, are ready to start up there will be renewed activity. There have been some good sales during the week, but the Iron was for the East where buying is more active on account of their delay in entering the market, owing to the unsettled condition of labor troubles. The amount of Iron being offered is not large, as many furnaces in the South are shut down owing to trouble with workmen in some instances, and lack of Ore and Coke in others. Many consumers think that the passage of the Silver bill, which they believe now is assured, will be an active factor in strengthening the market in August. Prices remain unchanged as follows:

Southern Coke, No. 1 Foundry....	\$14.75 @ \$15.25
Southern Coke, No. 2 Foundry....	14.25 @ 14.75
Southern Coke, No. 3 Foundry....	13.75 @ 14.25
Southern Coke, Gray Forge.....	13.25 @ 13.75
Southern Coke, Silver Gray.....	14.00 @ 15.00
Southern Coke, Car Wheel.....	23.50 @ 23.50
Southern Coke, Charcoal.....	17.50 @ 18.50

New York.

Office of The Iron Age, 65 and 69 Duane street, NEW YORK, July 16, 1890.

American Pig.—The New York market is very quiet, the only point worthy of interest being indications of weakness in Gray Forge, which has been offered, for good Northern brands, at a shade less than \$15, delivered. Southern furnaces are doing very little in this market, and are

showing little disposition to force sales. We quote No. 1 Northern Iron, \$17.25 @ \$18.50; No. 2, \$16 @ \$17, and Southern Iron, No. 1, \$17 @ \$17.50; No. 1, Soft, \$16.50 @ \$16.75, and No. 2, \$16 @ \$16.25.

Spiegeleisen and Ferromanganese.—Absolutely nothing has been done in Spiegeleisen. There is no demand whatever and very little offered. We quote nominally \$30 @ \$30.50 for 20 %. Ferromanganese is selling in small lots at \$72.50. For larger blocks lower figures would probably be accepted. A feature which appears to be growing in importance in the Ferromanganese trade is the demand from Car Wheel foundries. This business has been growing during the past year.

Wire Rods.—The only sales reported are small lots of Foreign Basic for home consumption, and one lot of 1000 tons of German Basic for Pittsburgh delivery, to be used for re-export, at private terms. Foreign Rods can be purchased at a low price, relatively, if the buyer is willing to take the chances on the duty. In that case \$45 @ \$46 can be done for sixes. Some concession is obtainable, too, on sailer shipment. For Foreign Rods, sellers assuming all risks, \$47 @ \$48 is quoted. Eastern mills quote \$45 at seller's mill, but there is very little available. In fact, it looks as though there would be quite a scarcity of Wire Rods for some time to come.

Steel Billets.—There has been very little business. It is worthy of note, however, that we are approaching the danger line, so far as importations are concerned. Foreign Billets can be laid down here at a little under \$33.

Steel Rails.—The market is very dull, with only small transactions being closed on the basis of \$31 @ \$31.50, at mill, Pittsburgh quotations being \$32 @ \$33, and Chicago \$33.50 @ \$34. The majority of the mills are well supplied with orders up to October 1, although some of them could take business for September delivery. The only large orders now in the market for the Eastern mills is a lot of 7500 tons for a Southern road, Savannah delivery, with an option of 2000 tons more. Considering everything, the volume of business during the first half of the year was fairly satisfactory. The report of the Board of Control shows shipments for the first six months of 713,205 tons, to which one Western firm contributes 197,207 tons, and another Western mill 154,931 tons. As previously reported by us, the Scranton Steel Company shipped 101,143 tons, leading by 25 % the next largest Eastern mill. It should be remembered, however, that these reports do not include light Rails, nor do they count the Allegheny or the Colorado mills. It is safe to say that the Rail product of the first half of 1890 will be found to be somewhere between 775,000 and 800,000 gross tons. Out of the total allotment of 1,410,000 tons, the mills in the association report sales aggregating 1,190,516 tons. They have therefore on their books for the second half of 1890, 477,311 tons, or about three months' work. How completely the tone of the English market has changed since prices there were nearly equal to our own, is shown from the fact that English Rails have been sold at the range of \$26.50 @ \$27, delivered at Montreal. We understand that nearly 25,000 tons have been placed.

Structural Material.—The strikes at a number of the mills are cutting off the supply of finished material, and the tone of the market is a little firmer. We quote: 2.15¢ @ 2.20¢ for Plates, 2.20¢ @ 2.25¢ for Angles, 2.5¢ @ 2.6¢ for Tees and 3.1¢ for Beams and Channels.

Old Rails.—Several thousand tons of Old Rails were sold during the week at

private terms, closing out the holdings of one party. Sellers generally quote \$25, but buyers are in the majority of cases unwilling to go beyond \$24 @ \$24.50 in their bids.

Track Fastenings.—We quote Spikes, 2¢ @ 2.05¢; Fish Plates, 1.75¢ @ 1.9¢, and Bolts and Nuts, 2.80¢ @ 3¢, delivered.

Warrant Stocks.

The stock of warrant iron was as follows on the 10th:

Date.	Put in.	Taken out.	Net Stock.
	Tons.	Tons.	Date. Tons.
Prior to Oct. 1, 1889.	7,200	.....	Oct. 1 ... 7,200
During Oct., 1889.	4,700	.....	Nov. 1 ... 11,900
During Nov., 1889.	12,700	.....	Dec. 1 ... 24,600
During Dec., 1889.	10,800	300	Jan. 1 ... 35,100
During Jan., 1890.	6,800	400	Feb. 1 ... 41,000
During Feb., 1890.	8,300	800	March 1 ... 48,500
During March, 1890.	3,100	2,100	April 1 ... 54,500
During April, 1890.	5,200	nil.	May 1 ... 59,700
During May, 1890.	1,900	200	June 1 ... 61,100
During June, 1890.	4,700	3,100	July 1 ... 62,700
July 1 to 10, 1890.	3,100	nil.	July 11 ... 65,800
Total	72,700	6,900	.....

Financial.

President Harrison having signed the Silver bill, the law takes effect August 13. The bill provides for the compulsory purchase of 4,500,000 ounces of silver per month and the issuance of special Treasury notes in payment, which shall be legal tender except where excluded by contract and which banks may count in their reserve. Director of the Mint Leach said that it was the intention of the Secretary of the Treasury to buy 4,500,000 ounces every month after the law went into effect, if it could be obtained at the market price. The designs of the new Treasury notes provided for by the Silver bill have been approved. A new feature is the printing of their value in big block letters across the back. They will say on their face that they are redeemable in coin, and on their backs that they are legal tender for all debts, public and private. The passage of the Silver bill is variously received, but with less evidence of disapproval since the extent of the compromise has been better understood. In importance the probable effect of the measure is compared with the enactment of the original legal tender law nearly 30 years ago. In addition to the 4,500,000 ounces of silver currency per month which it provides for, and which at present prices would amount to more than \$54,000,000 per year, the bill provides for the immediate release of more than \$55,000,000 of legal tenders, which have been heretofore held in the Treasury as a special fund for the redemption of the notes of national banks desiring to retire their circulation. On this calculation here is a total inflation of \$109,000,000 within the next 12 months, which is construed as a leaning toward easy money. As concerns Wall street operators, this turn in affairs is not unwelcome. An observer remarks: "There is an important class who, during the recent active creation of new railroad and other enterprises, have become saddled with a large amount of paper issues which they find it difficult to distribute; and they see in the Silver act a promise of salvation from a dreaded impending financial crisis." As concerns legitimate trade, it is safe to affirm that the silver inundation is sincerely deprecated, at least, east of the Mississippi valley. Aside from monetary questions, the general situation is cheered by the reasonable certainty of a good wheat crop, a strong probability of an abundance of corn, and the immediate

prospect of realizing from one of the best cotton crops ever grown, the latter soon making itself felt in the balance of foreign trade. A St. Paul dispatch of the latest date says the present condition of the wheat crop in Northern Minnesota and North Dakota is the best, with the possible exception of 1886, than it has been in ten years.

The stock market gained strength with the passage of the Silver bill, and there were large buying orders from London. Some strength was derived from the fact that the Bank of England rate was not advanced, indicating that the situation in South America was less serious than had been feared. The Villard shares were firm on the formal announcement of the plans of the Oregon and Transcontinental management for a transfer of the assets of the Company to the newly organized North American Company, also for the exchange of the capital stocks. On Monday there was a weaker undertone. The passage of the Silver bill caused a sharp advance in silver bullion certificates to 109½, the highest point ever reached, and the passage of the Postal Subsidy bill induced a rise in Pacific mail. In London bar silver rose from 48½d @ 49½d per ounce. On Tuesday the feature of the market was a sharp rise in silver bullion certificates to 109½, also an advance in New England on a report that the road will be extended to a connection with the Providence and Springfield. The failure of the market to "boom" was said to be due to information that a large amount of gold would be shipped to Europe by Saturday's steamers. Silver bullion certificates issued on and after July 15 will be subject to a storage charge of two cents per day per 1000 ounces.

United States bonds were quoted as follows:

U. S. 4½%, 1891, registered.....	103
U. S. 4½%, 1891, coupon.....	103
U. S. 4%, 1907, registered.....	121½
U. S. 4%, 1907, coupon.....	121½
U. S. currency & 1890.....	113½

The bank statement was favorable, showing an increase in surplus reserve of \$2,436,125, which brings the amount held by the banks up to \$6,283,075 in excess of legal requirements. Both the movement of currency from the interior and the operations of the Sub-Treasury favored the banks, but the exports of gold on Saturday, amounting to \$2,000,000, do not figure in the week's exhibit. The items show a contraction in loans of \$1,642,900, a gain in specie and legal tenders of \$2,843,100 and an increase in deposits of \$1,627,900.

The posted rates for bankers' sterling are \$4.85½ @ \$4.89½ for sight. The market is dull. London cables report that Argentine and Uruguayan securities have advanced on the better financial conditions in the two republics. The crisis at Buenos Ayres has passed the acute stage. Money was easier, there being a liberal supply. Time money is quoted 5% for four months, and 5 @ 5½% for six months on approved collateral. Commercial paper in fair demand. The best double-named paper is quoted at 5½ @ 6%, and prime single name at 6 @ 7%.

The general markets have been but slightly influenced by silver legislation. Breadstuffs have varied with crop reports and wheat was firmer on stronger cables, and corn advanced on account of the weather in the West checking exports, which, of late, have been heavy. The first new crop of winter wheat was received 11th inst. from New Jersey, and sold for \$1.25 per bushel. Spot cotton is firm. The first bale of new crop was from Georgia and brought 10½¢ @ 11¢ lb. Sugars found a better market. Dry goods jobbers report a moderate trade. Cotton goods are sold well ahead at full prices. The coal market is weak, on account of large production. Ocean freight engagements were the largest for some time.

The foreign commerce of the port of New York for June is remarkable on account of the increased imports in anticipation of higher duties, the total being \$50,512,000, which is more than \$8,000,000 in excess of the June receipts in any former year. Compared with June last year the gain is \$11,500,000. For the fiscal year ending June 30, the imports at New York make an aggregate of \$527,170,000, a gain compared with last year of \$51,000,000. Turning now to the exports for June the total, exclusive of specie, is \$29,058,000, a gain of nearly \$5,000,000 compared with last year, which is encouraging, but in 1889 when exports were active the shipments from this port exceeded \$42,000,000. For the whole country, during the next two or three months, an unfavorable balance may be expected, as the result of anticipating increased duties.

Exports of merchandise from this port for the week \$5,397,000; imports, \$11,091,000.

Metal Market.

Copper.—There are yet a few scattering lots of Lake Superior Ingot that may probably be had at or about 16½¢. It is very doubtful that any can be obtained at a lower price. Bids of 16½¢, made on orders from consumers and dealers, have failed to bring stock out. The demand has been more active the past few days than previously this month and a very fair business effected in a quiet way, including 500,000 lb or more at 17¢ for July and August delivery. That price is the lowest one now quoted by the mining companies or large outside sellers. Arizona Ingot is still very firmly held at 15½¢ and Casting Brands remain at 14½¢, with a fair trade passing in both varieties. The June product of the Lake Superior mines is estimated at 8,000,000 lb fine Copper, and the output for the past six months at 45,000,000 lb, or 3,000,000 more than that of the corresponding period last year. The entire output and considerable supply that was carried over has been consumed during the half year, and the product of other mines is believed to be closely sold up. A year ago there was held in Europe the equivalent of 21,566 tons Fine American Copper. At the present time there are not over 12,000 tons. The apparent consumption of all kinds in Europe during the first six months of 1890 was 77,386 tons, against 40,643 last year, 33,297 in 1888, and an average of 50,000 tons per annum during the corresponding period of the three preceeding years. The statistics of the world thus present the market in very strong shape, indicating an excess of consumption over production, the former seeming to be little affected, if at all, by the high prices ruling. Rumors have been current during the week of heavy purchases in the European markets by a New York firm, but these doubtless arose from knowledge of the fact, noted in our special cable report, that the bulk of Copper that remained in French hands has gone into the possession of a strong combination of persons having faith in higher prices. It is not stated whether smelters are interested in the purchase, but the belief here is that they had a hand in it.

Pig Tin.—The culmination of a speculative "bull" deal and the inauguration of another by the clique supposed to have demolished the first one, is the particular feature of the week in the market for this metal. The aggressors, it is figured out, pocketed \$15,000 on the break made by the lone operation on the June-July deal and they have, on paper, a similar gain from the result of subsequent manipulation for a rise, assisted by the effect of the progress of the Silver bill. According to current report about 500 tons were in-

volved in the transaction referred to, and it is understood that the lot was secured at 21¢. The clique have since purchased about 100 tons, paying 21.25¢ @ 21.30¢ and, through the assistance of a sharp rise in London prices, brought the spot market up to about 21½¢. Outside of this movement there has been little doing. Dealers seem partial to a conservative course in view of the quite large supply here, and consumers appear partial to a similar policy despite the "bullish" aspect of affairs in the London market and the concentration of the bulk of supply at this point. In other words, the more conservative element in the trade act as though of the opinion that the effect of legislation on Silver has been well discounted already. The demand for the metal from jobbers is moderate at all events, that from consumers is not above the average, and the clique, to all accounts, have a considerable stock to dispose of. At this writing store prices are about 21.55¢ for 5-ton lots and 21½¢ @ 21¼¢ for smaller quantities. Net cash prices for 10-ton lots are 21.40¢ bid, 21.55¢ asked, spot; 21.40¢ @ 21.55¢, July; 21.30¢ @ 21.45¢, August, and 21.25¢ @ 21.40¢ September delivery.

Pig Lead.—Operations in this metal have been unimportant and the reality seems to be somewhat in contrast with the anticipation, as far as the effect of the silver legislation is concerned. In any event, 4.52½¢ @ 4.55¢ are top prices for single carload lots on actual sale, and current bids for round lots do not go above 4.50¢. Not only that, but speculative and trade demand alike are rather disappointing. There is an impression that Silver Lead Ores, which have been stacked up pending the fate of the Silver bill will now be worked for the more valuable metal, and that the supply of Lead will thus be enhanced and more freely offered in the near future. However, there is no pressure to sell at the present time and prices are quite as firm in the West as in this market, 4.35¢ being quoted at St. Louis.

Spelter.—Prime Western on the spot is less firmly held, being offered at 5.50¢. Shipment prices are also a shade easier, with sellers now about 5.45¢, Eastern delivery, and 5.15¢ in St. Louis. Deliveries are quite large, as is also the consumption; but the demand at present is moderate and chiefly for single carload lots.

Antimony.—Transactions have been chiefly at within the range of prices quoted a week ago. The demand at present is fair and prices are steady, with 21¢ @ 21¼¢ quoted for Hallett's, 24¢ @ 24½¢ for Cookson's, and 22¢ for LX brand.

Tin Plate.—A slight improvement in sales of futures was noted early in the week, and there is yet some interest manifested in that direction. However, spot trade continues rather slow and of barely average volume for the season. Stocks are in better shape in Europe and favorably situated here, the position thus favoring firm prices. Quotations for large lines, on the spot, are as follows: Coke Tins—Penlan grade, IC, 14 x 20, \$4.45; J. B. grade, do., \$4.55; Siemens Steel, \$4.75; Bessemer do., \$4.50. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$4.70; IX basis, \$5.70; Siemens Steel, IC basis, \$4.80, IX basis, \$5.80. IC Charcoals—Calland grade, ½ X, \$5.50; Melyn grade, \$5.70; for each additional X add \$1.50; Allaway grade, \$4.90; Grange grade, \$5.00 @ \$5.10; for each additional X add \$1. Charcoal Tertres—Worcester, 14 x 20, \$4.80; 20 x 28, \$9.50; M. F., 14 x 20, \$7.10; do., 20 x 28, \$13.75; Dean, 14 x 20, \$4.50; do., 20 x 28, \$9.00; D. R. D. grade, 14 x 20, \$4.45; do., 20 x 28, \$8.90 @ \$9; Mansel, 14 x 20, \$4.50; do., 20 x 28, \$9;

Alyn, 14 x 20, \$4.50; do., 20 x 28, \$9; Dyffryn, 14 x 20, \$4.60; do., 20 x 28, \$9.10; Wasters—S. T. P. grade, 14 x 20, \$4.20; do., 20 x 28, \$8.60; Abercarne grade, 14 x 20, \$4.20; do., 20 x 28, \$8.55.

New York Metal Exchange.

The following sales are reported:

THURSDAY, July 10.	
20 tons Tin, spot.....	21.05¢
MONDAY, July 14.	
10 tons Tin, August.....	21.20¢
10 tons Tin, prompt shipment.....	21.30¢
20 tons Tin, August.....	21.35¢
10 tons Tin, September.....	21.30¢
10 tons Tin, September.....	21.35¢
TUESDAY, July 15.	
20 tons Tin, September.....	21.30¢
25 tons Tin, 1st half August.....	21.30¢
WEDNESDAY, July 16.	
10 tons Tin, July.....	21.45¢
10 tons Tin, August.....	21.35¢
20 tons Tin, August.....	21.30¢
10 tons Tin, September.....	21.20¢
35 tons Tin, spot.....	21.40¢
35 tons Tin, prompt shipment.....	21.30¢
25,000 lb Lake Copper, November.....	17.00¢

Coal Market.

The "greed for tonnage" manifested by the several great Coal carrying companies in the Anthracite trade is a special feature of the times and suggests a question whether such corporations as the Reading and Pennsylvania Railroad managers have not broken away from restraints, and may not be engaged in actual rivalry, regardless of the "under dog." Not to be outdone, the officials of the Delaware and Hudson Canal Company have issued an order placing all of the collieries of the company in the vicinity of Pittston, Pa., on full time. The Lehigh Valley Company likewise have resumed work more actively, putting in operation the Maltby Colliery, which has been closed over six years, and the Delaware, Lackawanna and Western is pumping out the Fuller Colliery, near Wyoming, after a year's idleness. It is stated that all the carrying companies are doing a profitable business, taking to market about the same amount of coal as in 1889, and at the same rates. At the same time, it is alleged, they are spoiling producers' profits; prices being 10¢ @ 35¢ per ton lower. Freight are lower and vessels plenty, but there is no disposition to buy and the market is dull. Although it is claimed that June prices are fairly well sustained, independent producers say that May prices more nearly approach actual sales. Authorized quotations are as follows: Free Burning Broker and Chestnut, \$3.65; Stove, \$4; Egg, \$3.75; Pea, \$2.50; all f.o.b.

Bituminous Coal is quiet and in good supply. Complaint is again heard of the scarcity of cars. Apprehended labor troubles in the Clearfield region have been arranged.

The production for Anthracite for the week ending the 5th inst. is 589,000 tons.

Regarding a question now exciting some remark, the Philadelphia Record says: "It is not unlikely that Mr. McLeod, in his newly won presidency, will change the policy of the Reading Coal and Iron Company. Under the terms of the lease just completed the Silver Brook Company pays the lessee 40¢ per ton royalty, and guarantees a payment of at least \$20,000 a year. In addition the company receive the freight on all the coal mined. Set opposite to these receipts are the paltry gains under the present system, whereby the Reading Railroad, after a full year's operation of its immense Coal properties and a production of 35,000,000 tons, finds itself about 10¢ a ton in pocket. These were actual figures in a recent report."

Imports.

Hardware, Machinery, &c.

Boker, Hermann & Co., Guns, cs., 57
Downs, Wm., Mach'y, cs., 19
Erie Despatch, Iron Ladles, cks., 21
Folsom, H. & D. Arms Co., Guns, cs., 6
Hartley & Graham, Arms, cs., 21
Hammacher, Schlemmer & Co., Nails, cs., 4
Kittridge Arms Company, Mdse., cs., 7
Lau, J. H., & Co., Arms, cs., 9
Outerbridge, A. E. & Co., Mach'y, cs., 19
Pim, Forwood & Co., Dutch Stoves, 300
Pioneer Iron Works, Mach'y, cs., 8
Rosendale Belting Company, Mach'y, pgs., 24
Schoverling, Daly & Gales, Arms, cs., 19
Sheldon, G. W. & Co., Guns, cs., 19
Tryon, E. K., Jr., & Co., Mdse., cs., 24
Ward, Jas. E. & Co., Mach'y, pcs. and pgs., 15
Werlemann, H., Guns, cs., 28
Wiebusch & Hilger, Mdse., cs., 66; Arms, cs., 6
Witte, John G. & Bro., Cutlery, cs., 5; Needles, cs., 1
Wyman, Chas. H., Mdse., cs., 43
Order—Nails, cks., 11; Guns, cs., 5; Mach'y, pgs., 22; Hdw., cs., 12.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, July 16, 1890.

Prices for Block Tin have advanced to £95. 15/, spot, under strong demand chiefly from the American market. The rise in the price of silver has, however, served to restrict shipments from the East to some extent, which fact, in connection with the moderate stocks here and heavy consumption, operate to excite local interest and strengthen prices.

Copper declined slightly during the early portion of the week under review, but a recovery has since taken place and the market is again strong, with Merchant Bars up to £58. 5/, cash. It is reported that the bulk of the Copper recently in French hands has passed into the possession of a strong combination, who expect to realize much higher prices shortly owing to present position of supplies and enormous consumption for electrical and other purposes.

Of Scotch Pig Iron warrants only small sales have been made, but prices moved up to 45/9. Some influence came from the announcement that three furnaces have been damped. An unexpected calling up of Cleveland contracts, on Thursday last, caused a rush to cover on the part of the "bears," and the "shorts" have since had to pay prices that the "longs" dictated. Under this squeeze 48/ was reached, but from that point there has been a reaction to 43/. Buyers of Hematite warrants have been holding off, but prices improved slightly, selling at 51/10½, Tuesday, on reports of the damping of two furnaces in Barrow and quite liberal shipments. To-day there were sales at 51/4 and the market looks weak. Old Iron Rails have been moderately active, with more call from America, and sales are reported made recently at £3 f.o.b., for Flanges.

The progress of the American Tariff bill overshadows all other influences bearing upon the Tin Plate market at the present time. Buyers are active and makers very firm. Many orders have been booked, and there is a large demand from San Francisco and the oil trade.

It is reported that considerable orders for Steel Blooms have been received from the States. Otherwise, there is no new

feature in the Steel trade, apart from a slight rise on Wire Rods. Ship Plates are quiet, with offers at £6. 15/ at Barrow.

Reports from the German centers state that the demand there for Pig Iron is slack and that stocks continue to increase.

The Melingriffith Tin Plate Works, near Cardiff, have been closed.

Scotch Pig Iron.—For makers' brands there is a fairly active market, but prices are still rather irregular:

No. 1 Coltness, f.o.b. Glasgow.....	61/6
No. 1 Summerlee, " ".....	61/
No. 1 Gartsherrie, " ".....	59/6
No. 1 Langloan, " ".....	61/6
No. 1 Carnbroe, " ".....	47/6
No. 1 Shotts, " at Leith.....	62/
No. 1 Glengarnock, " Ardrossan.....	59/6
No. 1 Dalmellington, " ".....	52/6
No. 1 Eghinton, " ".....	47/

Steamer freights, Glasgow to New York, 2/6, nominal; Liverpool to New York, 10/.

Cleveland Pig.—There has been rather more doing, but prices are unchanged, makers still quoting 42/6 for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—Demand has been slow, and prices are still in buyers' favor. West Coast brands, Nos. 1, 2 and 3, 51/6, f.o.b. shipping port.

Spiegel Eisen.—The movement continues very fair and prices remain steady. English 20 % is quoted at 92/6, f.o.b. shipping port.

Steel Rails.—There is a very fair demand and prices are steady. Heavy sections quoted at £4. 17/6 @ £5, and light sections £5. 15/ @ £6, f.o.b. at N. W. England shipping point.

Steel Blooms.—The demand somewhat improved at £4. 15/ for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—Very little doing and prices unchanged. Bessemer 2½ x 2½ inches, £4.17/6, f.o.b. at N. W. England shipping point.

Steel Slabs.—No change on these, the demand still being light. Bessemer quoted at £5. 7/6, f.o.b. at N. W. England shipping point.

Old Iron Rails.—Buyers and sellers still apart, but the demand fair. Tees quoted at £3. 2/6 @ £3. 5/, and Double Heads £3. 5/ @ £3. 7/6, f.o.b.

Scrap Iron.—A moderate business with prices unchanged. Heavy Wrought quoted at £2. 15/ @ £2. 17/6, f.o.b.

Crop Ends.—There is little doing, and prices are nominal. Bessemer quoted at £2. 17/6 @ £3, f.o.b.

Tin Plate.—A fairly active market, with prices firm, but no higher. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade.....	16/ @ 16/3
IC Bessemer Steel, Coke finish.....	14/ @ 14/3
IC Siemens " ".....	14/3 @ 14/6
IC Coke, R. V. grade.....	13/9 @ 14/
Charcoal Terne, Dean grade.....	14/ @ ...

Manufactured Iron.—In this line there has been a very fair trade and prices are firmer on Common Bars and Block Sheets. We quote, f.o.b. Liverpool:

Staff, Marked Bars.....	9 0 0 @ 9 10 0
Common " ".....	@ 7 5 0
Staff, Bl'k Sheet, singles.....	@ 7 12 6
Welsh Bars (f.o.b. Wales).....	5 2 6 @ 5 3 0

Tin.—The market very firm and fairly active. Straits quoted at £95. 15/, spot, and £96. 5/ for three months' futures.

Copper.—Business still active. Prices somewhat irregular to-day. Chili Bars

quoted at £58, spot, and £58, three months' futures. Best selected, £64.

Lead.—A slow market with prices rather lower. Quoted at £12. 17/6 for Soft Spanish.

Spelter.—Prices are a shade lower and the demand is quiet. Quoted at £23. for ordinary Silesian.

Test of Steel Armor Plates.

A Government test of steel armor plates purchased abroad is about to be made by Secretary Tracy. The trial will have an important bearing upon the future construction of battle and other armored ships. The board chosen for this purpose will be composed of at least a dozen of the best experts of the navy. Rear Admiral Kimberly will be the president. The plates to be tested are a compound plate made by A. Cammell & Co., an all steel plate made by the Creusot Company, of France, and a nickel steel plate, also made by the latter firm. Each plate is 10½ inches thick. An 8-inch high power steel gun will be used in attacking these plates. After each shot the target and backing will be examined and their conditions minutely recorded. The Secretary intends to have the trial conducted in such a manner that there can be no room for doubt as to which is the superior plate when the tests are completed. The *Pittsburgh Dispatch* says: "Some surprise has been expressed that no American manufacturers have responded to the United States Navy Department's invitation to submit armor plates for a competitive test to be made shortly at Annapolis. The manufacturers in Pittsburgh are simply too busy to make armor plates for experimental purposes. They are making armor plates for the new vessels of our navy in great quantities."

The Secretary of the Navy has decided to allow the Union Iron Works, of San Francisco, to increase by 15 feet the length of the 5500-ton protected cruiser for which they were recently awarded the contract. This will make the total length of the vessel 345 feet, and will probably increase her displacement by about 100 tons. The contractors are willing to make this change in the vessel without extra expense to the Government, as it will afford them more space for the boilers, allowing them to be increased in size and giving a better arrangement of coal bunkers as well as greater coal capacity. It will also give the ship much better lines for speed. She is to have 53 feet beam, and as at first designed would have been too short and broad for the best speed results.

Edward Cooper, of Cooper, Hewitt & Co., ex-Mayor of New York City, has sailed for Europe.

Charles A. Moore, a member of the iron machinery firm of Manning, Maxwell & Moore, of Liberty street, this city, at last accounts was dangerously ill at his summer home at Greenwich, Conn.

Recent rumors that the Cramps, of Philadelphia, were to increase their ship-building plant are verified by the purchase of 63 acres of valuable water front, of which the deeds are now on record. It is announced further that the William Cramp & Sons' Ship and Engine Building Company have increased their capital stock to \$2,500,000, a large amount of additional cash capital having been contributed by a strong party of capitalists. In addition to their present plant the William Cramp & Sons' Ship and Engine Building Company have secured the option to purchase a very valuable property on the Delaware

River front below the old navy yard. On this site will be erected one of the greatest shipbuilding yards of the world. The management of the business and the control and direction of all the work at both shipyards will remain in the hands of the Messrs. Cramp. The enlargement of the plant is made necessary by the large increase in the number of contracts for new vessels, which include one or more ocean steamers for one of the transatlantic lines. None of the business at the old shipyard at Kensington will be transferred to the proposed new plant, which will be in addition to the company's present plant.

From the West comes the report of the purchase of some millions of dollars worth of American goods for transportation to Buenos Ayres. The enterprise is backed by a syndicate. Some 70 of the leading firms in the United States have been dealt with for the supplies, which consist of goods of all kinds—wagons, carriages, machinery, furniture, firearms, cutlery, sewing machines and manufactured goods generally. These will be placed in an exhibition building. A system of long credit is to be adopted, a marked discount for cash, and strong efforts to be made to undersell European competitors.

The Sable Iron Works of Zug & Co., Limited, at Pittsburgh, started up in full on Monday, the 14th inst., after a shut down of two weeks for repairs.

The Lookout Iron Company, of Chattanooga, Tenn., which has hitherto refused to sign the scale of the Amalgamated Association, attached their signature to it for the first time last week.

Exports,

PER SHIP WANDERING JEW, JUNE 17, 1890,
FOR MELBOURNE, AUSTRALIA.

By Strong & Trowbridge.—2 dozen Forks, ½ dozen Borers, ½ dozen Braces, 10 dozen Hammers, 12 dozen Fly Traps, 100 pounds Stone, 12 dozen Zinc Oils, 1 dozen Carriage Jacks, 3 dozen Hay Knives, 600 pounds Nails, 10 dozen Axes, 400 pounds Nails, ½ dozen Borers, 21 Pumps, 4 Lawn Mowers, 4800 Bolts, 4 dozen Shears, 9 dozen coils Picture Wire, 2 Hardware, 3 dozen Bush Hooks, 5 dozen Hammers, 73 dozen Axes, 20 boxes Nails, 1 dozen Bells, 60 Pumps, 3500 Bolts, 30 pounds Rivets, 25,000 Primers, 200 pounds Nails, 10 gross Coat Hooks, 21 dozen Saws, 8 dozen Door Rappers, 20,000 Cartridges, 2 dozen Wrenches, 10,000 Cartridge Shells, 9 dozen Fly Traps.

By W. H. Crossman & Bro.—9 Grindstones, 25 dozen Cow Bells, 6 gross Lawn Sprinklers, 39 dozen Oilers, 6 dozen Sifters, 14 dozen Fish Lines, 2300 pounds Rivets, 50 cases Hardware, 4 dozen Hatchets, 36½ dozen Axes, ½ dozen Lawn Mowers, 6 dozen Snaths, 5½ dozen Hatchets, 1 Miter Box, 48 dozen Axes, 12 dozen Picks, 24 dozen Hatchets, 1 case Agricultural Implements, 4 cases Pump Parts, ½ dozen Lawn Mowers, 1 dozen Wringers, 10 dozen Bush Hooks, 6 cases Hardware, 50 dozen Traps, 19,000 Loaded Shells, 15 dozen Axes, ½ dozen sets Sad Irons, 26 Freezers, 4 dozen Thermometers, 14 cases Hardware, 1 box Hardware.

PER BARK LUCY A. NICKELS, JUNE 23, 1890,
FOR SYDNEY, N. S. W.

By H. W. Peabody & Co.—3 cases Springs, 10 cases Hardware, 1 case Hardware, 1 case Iron Castings, 10 cases Iron Castings, 1000 pounds Nails, 2 cases Hardware, 25 Refrigerators, 2 packages Hand Carts, 27 cases Wringers, 11 Forges, 3 cases Hardware, 70 packages Lampware, 24 Revolvers, 1 package Hardware.

By R. W. Cameron & Co.—2500 pounds Machinery, 90 pounds Saw Teeth, 10 boxes Plows, 3 packages Machinery, 4905 pounds Axes, 5 boxes Castings, 7 cases Carriage Hardware, 15 dozen Axes, 1 dozen Sad Irons, 3 dozen Axes, 1 dozen Sad Irons, 1 dozen Scales, 1 case Lampware, 5 boxes Woodworking Machinery.

By George M. Pierce & Co.—650 pounds Refrigerators.

By E. W. Hanston.—1 case Machinery.

By B. F. Avery & Sons.—45 Plows.

By Simpson, Hall, Miller & Co.—22 cases Brassware.

By Sargent & Co.—28 cases Hardware, 12 packages Castings.

By R. H. Dana & Co.—54 dozen Saws, 4 dozen Forks, 10 dozen Snaths, 9 dozen Scythes, 1 dozen Coffee Mills, 42 Files, 24 dozen Axes, 16 dozen Hatchets, 29 rolls Sandpaper, 45 dozen Forks, 20 dozen Snaths, 6 dozen Hoes.

By Hsley, Doubleday & Co.—10 gross Tools, 12 dozen Brushes, 1 dozen Wagon Jacks, 61 packages Hand Machinery.

By McLean Bros. & Rigg.—38 Refrigerators, 20 dozen Padlocks, 16 cases Granite Ware, 8 Refrigerators, 6 dozen Hoes, 44 dozen Locks, 6 dozen Store Trucks, 2 dozen Locks, 24 dozen Pulleys, 4 dozen Planes, 6 Store Trucks, 4 dozen Wrenches, 5 Refrigerators, 6 dozen Augers, 1½ dozen Wringers, 16 Freezers, 22 cases Agate Ware, 23 dozen Hammers, 15 dozen Bird Cages, ½ dozen Wringers, 6 cases Castings.

By W. H. Crossman & Bro.—1 case Plated Ware, 1 case Hardware, 2 cases Carriage Hardware, 2 cases Hardware, 20 dozen Axes, 15 dozen Forks, 4 dozen sets Sad Irons, 1 case Agricultural Implements, 19 cases Hardware, 14 dozen Hatchets, 6 packages Hardware, 71½ dozen Axes, 6000 Cartridges, 4 cases Hardware.

By A. Field & Sons.—7624 pounds Iron Tacks.

By Meriden Britannia Company.—17 packages Plated Ware.

By J. L. Mott Iron Works.—6279 pounds Stoves.

By Simpson, Hall, Miller & Co.—7 cases Plated Ware.

By F. B. Wheeler Company.—2½ dozen Churns.

By R. W. Forbes & Son.—1 case Fire Arms, 5 cases Agricultural Implements, 4 cases Hardware.

By A. S. Lascelles & Co.—20 dozen Axes, 6 dozen Picks, 3 dozen Gauges, 4 dozen Springs, 4 dozen Cutters, 5 dozen Padlocks, 6 cases Tacks, ½ dozen Cutters.

By Strong & Trowbridge.—2½ dozen Hammers, 224 pounds Stone, 3 dozen Blocks, 12½ gross Bolts, 32 Pumps, 6 dozen Clamps, 3 dozen Axes, 100 pounds Hardware.

FOR NEW CASTLE.

By W. E. Peck.—3 cases Agricultural Implements, 1 dozen Churns, 1½ dozen Choppers, 1 case Hardware, 14 dozen Axes, 1 case Tinware.

By H. W. Peabody & Co.—15 packages Hardware, 3 cases Lampware, 12 Pumps, 3 cases Bolts, 1 dozen Forks, 1 dozen Agateware, 13 cases Lampware, 2 cases Pumps, 20 packages Hardware, 1 case Forks, 3 crates Churns, 6 dozen Handles, 1 dozen Wringers, 2 cases Iron Castings, 1 case Stepladders, 10 packages Stoves, 24 packages Hardware, 30,000 Primers, 24 Churns, 3 cases Wringers, 1 case Hardware, 4490 pounds Wire, 677 packages Agricultural Machinery.

By McLean Bros. & Rigg.—½ dozen Wringers, 6 dozen Hoes, 3 dozen Farm Tools, 2 dozen Augers, 4 dozen Picks, 2 dozen Hammers, 14 dozen Axes, 14 Churns, 1 dozen Saws, 21 Pumps, 14 dozen Axes, 3 dozen Fly Traps, 1½ gross Sash Cord, 2 dozen Plumbs and Levels, 8000 Bolts.

By Strong & Trowbridge.—6 dozen Hatchets, 3 dozen Wrenches, 10 dozen Braces, 1 dozen Adzes, 15 dozen Hoes, ½ dozen Apple Parers, 7 dozen Saws, ½ dozen Peach Parers, 4 dozen Hammers, 1 dozen Forks, 2 dozen Transom Lifters, 1½ dozen Wringers, 10 dozen Axes, 4 dozen Hatchets, 15 dozen Pumps, 404 pounds Hardware, 2 dozen Rakes, 1 dozen Freezers, 11 dozen Pulleys, 2 dozen Snaths, 3 dozen Blocks.

PER BRIG L. W. PARKER, JUNE 24, 1890, FOR
FREEMANTLE, AUSTRALIA.

By Mailer & Quereau.—1 case Lamps, 2 cases Hardware.

By R. W. Forbes & Son.—98 dozen Axe Handles, ½ dozen Hay Knives, 1½ dozen Braces, ½ dozen Churns, 1 case Snaths, 2 dozen Saws, ½ dozen Braces, 3 dozen Spade Handles, 12 dozen Axes.

By Arkell & Douglas.—366 pounds Castings, 20 sets Axes, 8 dozen Axes, 5 dozen Meat Choppers, 4 dozen Saws, 4 dozen Rakes, 27 dozen Wood Faucets, 300 feet Hose, 1 gross Traps, 3 dozen Freezers, 405 pounds Nails, 4 dozen Castings, 715 pounds Bolts, 66 pounds Nails, 11 dozen Levels, 5 dozen Hoes, 572 pounds Castings, 12 dozen Traps, 1 dozen Braces, 20 dozen Axes, 1 dozen Wood Faucets, ½ dozen Store Trucks, 12 dozen Pumps, 3 dozen Plated Ware, 2 dozen Saws, 5 dozen Axes, 6 dozen Fly Traps, 1½ dozen Meat Cutters, ½ dozen Scales, 12 dozen Forks.

By R. W. Cameron & Co.—1 case Hardware, 109 pounds Stone, 40 dozen Picks, 8 cases Hardware, 20 sets Axes, 3200 Bolts, 2 dozen Hardware, ½ dozen Meat Choppers, 360 dozen Blocks, 11,234 pounds Wire, 3213 pounds Castings, 3 cases Axes, 40 dozen Axes.

HARDWARE.

The Condition of Trade.

We give below a very interesting collection of reports from representative houses in regard to the condition of business in their respective markets, and it will be observed that with remarkable unanimity the present condition of business is referred to as eminently satisfactory and the outlook as very encouraging. It is obvious that business has continued in fair volume in what is usually one of the duller months, and that the tone of the market is such as to give the expectation of an exceptionally good trade in the fall. The promise of large crops and the general prosperity which prevails throughout the country contribute largely to this satisfactory condition.

Chicago.

(By Telegraph.)

The demand for Hardware keeps up so well that a decidedly hopeful view is now taken by the trade with regard to business for the last half of the year. Never before did the heavy spring demand run so far into midsummer. From every part of the territory reached by the Chicago jobbers come reports of good crops and large orders for all classes of goods. The building trade throughout this whole section is particularly active, calling for unusually large quantities of Hardware and other material. The indications of good times are so pronounced that the best informed members of the trade predict that prices must certainly advance in the near future. They find that stocks are very low in manufacturers' hands, and that with empty warehouses and the heavy volume of back orders it is difficult to get goods from them to supply the immediate demand. This has been especially true of staple goods, but is now becoming a feature of other lines. A scarcity of labor is reported by many employers, and this is also an indication of an unusually busy season. The heavy demand for finished goods, if it continues in this way, must carry an advance in prices of Crude materials. The Shelf Hardware jobbers find that, instead of their trade falling off, there is every prospect of its becoming larger. The inclination is towards an increase rather than any diminution. Heavy Hardware is likewise in unusual demand, shipments now being made to all points covered from this center. It is hardly necessary to refer to collections under these circumstances, but there seems to be no trouble about getting money now as the farming interest are in such excellent condition.

Nails are held very firmly. Wire Nails are especially stiff. Mills are asking outside prices on inquiries made by them to sort up or to slightly anticipate the future. The lowest price now known on factory lots is \$3.45 in Chicago. This is practically the price asked by jobbers on mixed carloads. The manufacturers of Cut Steel Nails are also very firm, and it is believed now that

\$1.85, at mill, is the bottom rate for large lots. Indications are strongly in favor of higher prices on both kinds of Nails. The demand is good for consumers, and it will be but a short time until the large buyers are again in the market to replenish their stocks. Jobbers quote from store \$2.05 for Cut Steel Nails and \$2.50 for Wire Nails and are holding very closely to these prices under all circumstances.

Barb Wire continues in very good demand, and stocks seem to be light in every direction. Manufacturers are still behind in their orders and have obliged jobbers to pay 10¢ per 100 advance on sales recently entered. The local jobbers continue to quote painted at 29¢, and galvanized at 35¢, in ordinary lots.

St. Louis.

Jobbers report a continued activity in nearly all lines; seasonable goods, of course, are the leaders. Prices on all staple goods are firm and there is little prospect of any immediate change either way. The movement in Wire Nails is unusually large and in fact builders' supplies of all kinds have been in active demand. For three months past collections have been unusually good. A leading local concern on the first of the month sent out 250 drafts, only seven of which were returned not paid. Fall trade promises to be very large.

San Francisco.

HUNTINGTON HOPKINS COMPANY.—Trade is somewhat quiet just at present, owing, no doubt, to the national holiday just passed, and also to the fact that harvest is now in full sway. We feel safe in anticipating a good fall trade, with firm prices.

Portland, Ore.

FOSTER & ROBERTSON.—Dear Sir: The last two weeks have been comparatively uneventful ones in trade circles. The volume of business shows little or no falling off from the spring months. This is a season of the year when trade is usually dull in the East, yet with us July and August are liable to be just as busy months as April and May. The undeveloped resources of these three Northwestern States—Oregon, Washington and Idaho—are such, exceeding as they do in native richness any equal territory on earth, that this activity in trade must continue all the year round and for some time to come. There is a constantly increasing activity in the city retail trade, to keep pace with which several of our local dealers are making very substantial improvements and additions. When the new store-rooms now being fitted up for Messrs. Honeyman, De Hart & Co., and Messrs. Dayton, Hall & Avery are completed, Portland will probably have two of the finest retail Hardware stores there is to be found anywhere in the country. There has been an advance of 10 cents per keg in the price of Nails, which are now held at \$3.10 for Iron, \$3.20 for Steel and \$3.80 for Wire, in carload lots. Stocks

are unusually low for this season of the year, but an abundant supply for the various houses is now on its way across the continent or around the Horn. There has also been a slight advance on Disston's Hand Saws. The strike on the part of tanners at this point, early in the spring, led many of the strikers to open up for themselves, thus causing quite an active demand for Tanners' Tools and supplies. This demand has now in a measure fallen off, as most of the men have located. The abundance of fruit, for which this country is growing famous, and for which there is no more favored spot to be found anywhere, has caused a very large demand for enameled Hollowware and canning supplies; while our rapidly developing dairy interests have called for large quantities of Stamped and Pieced Ware. The demand for Crosscut Saws and Axes continues active and is on the increase, while the trade in Harvest Machinery and Tools is at its very best.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—We are pleased to report a most satisfactory volume of business for the season of the year. The first two weeks in July are, as a rule, the most quiet of any during the year; trade this season has kept up remarkably well during this period. Salesmen representing the jobbing houses who have already started on their fall trips are from all reports sending in orders fully up to the average and write encouraging letters regarding prospects from most sections. The call for spring and summer seasonable goods is practically over, the only orders received in these lines being for small lots wanted to fill urgent demands. The stocks in the hands of both manufacturers and jobbers we feel in most cases is far below the average amount of goods carried from one season to another. Prices as a rule are well maintained, the weakening of a few days in prices on some heavy goods having given way to a better feeling and stiffening of prices.

Baltimore.

CARLIN & FULTON.—The month of July is not characterized by any great volume of business in this market, though orders are fully up to the average of other years. Stocks are now being overhauled and replenished, and every preparation made for the coming season. The reports of the crops as sent in by the salesmen are very favorable, and should no disaster happen from flood or drought, the indications are for a heavy fall trade. There is but little to mention in regard to prices. One of the largest Nail factories in the business writes us: "When we stop our Nail factory—which we will do in a short time—it will be for an indefinite period. The Nail business has not been profitable, and unless there is a decided improvement in the business, we may not resume the manufacture of Nails during the present year." To the manufacturers there seem to be but two remedies for unsatisfactory prices; one in the event of overproduction is to stop work, which brings great suffering on their employees; the other is

to form combinations, pools or trusts, which result in just as much dissatisfaction with the trade.

Louisville.

W. B. BELKNAP & Co.—The market is characterized by increased firmness in almost every line. Sheet and Bar Iron may be marked up with safety \$1 a ton. So many of the mills have closed down or have sold up that between the two extremities product is not over plenty. There used to be a creature of summer birth and life, which made the mills go in warm weather, known in the manufacturing districts as the "hot dollar." This is now extinct. We have not heard of it for years, and we suppose it has gone to join the wild pigeons and the buffalo. At any rate, hot weather seems more exhausting, or the workmen less able to stand it than in the olden days, and the consequence is a curtailed production. We are not sure that this is a bad thing by any means, and would be willing to put up with less effort ourselves during the more torrid days of July and August if the move were general. That, however, is not to be, as it is not in the order of things. The tendency is, instead of yielding, to overcome the effects of the seasons or meteorological conditions by producing artificial heat in winter and cold in summers, that human effort shall be available every day in the year. In the business office of the future we shall have our plate glass windows cleaned with something which shall kill flies when they touch it; cool oxygenated breezes shall be blown in upon us so that our thermometers shall not register over a most agreeable temperature. In short, there shall be no interruption by external unpleasant influences to that flow of thought and mental resources which constitutes the outfit of every good Hardware man to-day. The only adverse features in the situation are the protracted draft which is in the Ohio Valley, and the railroad brakemen's strike. This latter is largely maintained by the sensation makers of the daily press, who, by giving undue prominence to the individuals connected with it, do more than anything else to force both sides into maintaining a hostile attitude. This was especially noticeable in the great Southwestern strike of a few years ago.

Cleveland.

THE W. BINGHAM COMPANY.—July is following in the wake of the preceding months this year, and we can report business as exceptionally good. Of course in the comparison with the other months, it seems somewhat quiet, as in most of the large houses salesmen and other employees are beginning to scatter for their summer vacations; but, on the whole, the business is above the average. The orders that are coming in are mostly of the "sorting-up" kind, with some for futures, on sheet iron, elbows, &c. We are glad to see, however, the tendency to place orders for future delivery so far in advance of the time the goods are needed is decreasing. Prices on staples show no change. Demand for Nails somewhat fallen off. Fence Wire

orders now being caught up with, and new business can be promptly taken care of. Iron dealers show a decided disinclination to book large orders at present prices or to quote for future, as they seem to think the tendency decidedly upward. The new prices on Disston's Saws are being firmly held here by all dealers, also on Stove Boards. By the way, isn't the tendency for consolidation of manufacturers going to throw onto the market a lot of high-priced traveling salesmen and buyers? If we have but one place to buy Axes, one for Stove Boards, one for Saws, and so forth to the end of the chapter, manufacturers will have no use for their travelers and the jobber can do away with the buyer. What a cutting down of expenses there can be—*perhaps*.

Boston.

BIGELOW & DOWSE.—New England farmers are in the midst of haying. The crop is good and the weather is fine. The market is entirely bare of Snaths and the stocks of Scythes are badly broken. There will be but few Haying Forks carried over this year. The abundant rains have kept the lawns green all the spring, until now the hot sun makes it necessary to water them daily, and Sprinklers are having a large sale. The summer vacations reduce the force at this season, but all hands left at home are kept busily employed.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—In former years we have always looked for a lull in business after the Fourth of July. This year seems to be an exception, as orders for all kinds of goods are coming in freely, and we are kept very busy trying to keep up with the demand. There is an unusually active demand for such seasonable goods as Scythes, Snaths, Rakes and Steel Goods, Green Wire Cloth, Door and Window Screens, and stocks in jobbers' hands are pretty nearly exhausted. Crop prospects throughout the Northwest continue to look favorable, reports from most sections being good, though some localities report too much rain. The next four or five weeks is the critical time with us, as our fall business depends very largely on how this crop turns out. There is a good deal of dissatisfaction expressed by jobbers regarding the margins of profit, which are gradually being cut down, while there is no apparent necessity for it. There might be a reason in cutting prices when trade is dull and jobbers anxious to realize on their stocks, but with the active demand there has been for Hardware this year, it is absolutely senseless. This state of things grows largely out of the over anxiety of salesmen to make sales and the too great latitude their houses allow them in making prices. Retail trade in the twin cities is reasonably good; there is not the activity of a few weeks ago and it probably will not be very brisk again until fall.

Omaha.

LEE-CLARKE-ANDRESEN HARDWARE COMPANY.—Continued activity among the jobbing Hardware trade here expresses the leading feature. Shelf Hardware is in

steady demand, and seasonable goods are having a much more extended sale than usual. A lull in trade is usually expected at this time of the year, but this season the summer business will evidently extend well toward the commencement of the fall season. Numerous inquiries have already been received for prices on fall goods, such as Stove Pipe Elbows, Stove Pipe, Stove Boards, Coal Hods, &c., which would indicate an early opening of commerce on this class of wares. Nothing has yet occurred to mar the prospects of the farming community, and corn reports from all sections indicate a coming abundant harvest. The weather has been all that could be desired for growing crops, and all conditions being favorable, sanguine expectations are indulged. The volume of local or city trade makes a satisfactory showing. New and extensive public works are being pushed forward rapidly, while a large number of costly residences, with others of less pretensions, are in course of erection. Money is fairly abundant, and collections may be reported as satisfactory.

Wire Nails.

There has been no important change in the situation since our last report, manufacturers being well occupied with orders and the market being characterized by a firm tone. This is owing in large part to the advances in the raw material, which, if maintained, will probably require a further advance in Nails. Quotations are on the basis of \$2.30 in carload lots, at mill, with the regular advances on smaller parcels.

There have been current in the newspapers exaggerated reports in regard to the stoppage of the mills on account of labor difficulties. These were based upon the fact that the mills of the Salem Wire Nail Company, at Salem and Findlay, Ohio, had been shut down on account of a strike, but this, we are advised, has been satisfactorily settled and work was resumed last Monday. We are advised by the HP Nail Company, New Castle Wire Nail Company, Phillips, Townsend & Co., Cincinnati Wire Company and St. Louis Wire Company that they have not encountered any labor difficulties, and they refer to the activity of their mills and the excellent condition of trade.

Cut Nails.

The conditions affecting the market have not materially changed during the week, the price of Iron Cut Nails remaining \$1.75 @ \$1.85 for carload lots on dock, New York.

Miscellaneous Prices.

Copper Rivets and Burrs are unchanged and held regularly by the manufacturers at the recently advanced prices. Some of the jobbing houses, who presumably have large stocks on hand, are, however, offering them at 60 per cent. discount.

Since the formation of the combination on Planes prices have been steadily maintained, but there are indications now of some slight irregularities. These take the form of granting the extreme discount to

buyers who are scarcely entitled to it, or offering them concessions on especially desirable orders.

Tackle Blocks are still selling at low and irregular prices. The competition among the manufacturers continues active.

The prices of Wrought Butts are quite well maintained, but some of the leading jobbing houses in the West make concessions from regular quotations.

Loaded Shells continue scarce—a fact which, without any advance by the manufacturers, makes them to be held more firmly by parties who have the goods in stock. Some of the leading Chicago houses are, however, still quoting them at 40 and 10 and 10 and 5 per cent. discount.

An advance of 5 per cent. has been made in the prices of Maslin Kettles and Sauce-pans, both tinned and enameled.

We are advised that as the indications for a large crop of apples are not promising, the outlook for Apple Parers the present season is not especially encouraging. It is expected that the demand will be only moderate. Prices are about the same as last year, with a slight tendency toward lower figures. The following are the quotations on the line of Apple Parers manufactured by L. A. Sayre, Newark, N. J.:

Favorite, per dozen.....	\$5.00
Ideal, per dozen.....	4.00
Monarch, peach, per dozen.....	13.50
Waverly, per dozen.....	4.00

The following are the prices of the Apple and Potato Parers manufactured by the Goodell Company, Antrim, N. H.:

Turntable, per dozen.....	\$4.50
New Lightning, per dozen.....	5.50
White Mountain Apple Paring, Coring and Slicing Machine, per dozen.....	4.00
White Mountain Potato Parer, per dozen.....	4.50
Antrim Combination, per dozen.....	5.50
Family Bay State, per dozen.....	12.00
Improved Bay State, per dozen.....	\$27 to 30.00
Bonanza, each.....	5.00
Dandy, each.....	7.50
Eureka, each.....	20.00

The Penn Hardware Company, Reading, Pa., are still offering the Penn Apple Parer, Corer and Slicer. It has been on the market five years, and is quoted at \$3 per dozen.

The Strap and T Hinge market remains in the same condition as at our last report, the manufacturers continuing their policy of selling the smaller trade at prices closely approximating those given to large buyers. There has been no further decline, but the goods are regarded as rather weak, and it is thought not unlikely that slightly lower prices will be developed.

There has been no important change in the Saw market, prices being characterized by a firm tone. The following discount sheet, bearing date June 20, has recently been issued by Henry Disston & Sons, Philadelphia. The advance in the price of Hand Saws, &c., will be noticed, as well as the revision of some other discounts:

Circular Saws and Repairs.....	Dis. 45 %
Mill and Mulay Saws.....	45 %
Gang Saws.....	45 %
Tillers and Boxes.....	45 %
Pitt, Whip and Futtuck Saws.....	45 %
Ice Saws.....	45 %
Butting or Drag Saws.....	45 %
Cross-cut Saws.....	45 %
Great American.....	45 %

Lumberman.....	45 %
Diamond.....	45 %
Fleam.....	45 %
Lancet.....	45 %
Electric.....	45 %
Champion No. 1.....	45 %
" No. 2.....	45 %
Tuttle.....	45 %
Plain.....	45 %
Hook Tooth.....	45 %
Triumph Narrow.....	45 %
Great American Skew-back, one man saw.....	45 %
Great American with Supplementary handle.....	45 %
Champion One Man.....	45 %
Gauge for Regulating Teeth.....	45 %
Cross-cut Saw Handles.....	45 %
Loop.....	45 %
Climax.....	45 %
Double Grip.....	45 %
One-Man Handles.....	45 %
Saw Mandrels.....	25 %
Saw Gummers.....	25 %
Gummer Cutters.....	25 %
Emery-Wheel Gummers.....	25 %
Lever Punch.....	25 %
Swages.....	25 %
Tools for Repairing.....	25 %
Saw Sets.....	25 %
Side File.....	25 %
Star Saw Set.....	25 %
Saw Clamps.....	25 %
Saw Gauges.....	25 %
German Pattern Webs.....	25 %
Doctor Blades.....	25 %
Cabinet Scrapers and Slicer Blades.....	25 %
Saw Rods.....	25 %
Cane Knives.....	25 %
Post Hole Diggers.....	25 %
Pruning Hook and Saw.....	25 %
Molders' Tools.....	25 %
Brick and Pointing Trowels.....	25 %
Machinists' Tools.....	25 %
Draftsmen's Squares.....	25 %
Slaw and Kraut Cutters.....	25 %
Barker's Butts.....	25 %
Machinists' and Carpenters' Iron Try Squares and Bevels.....	25 %
Plastering and Pointing Trowels.....	25 %
Band Saws.....	35 %
Fay's Patent Scroll Saws.....	20 %
Felloe and Turning Webs.....	20 %
Hand Saws, all kinds.....	20 %
Pruning Saws.....	20 %
Compass, Nest, Interchangeable and Iron Pad Keyhole Saws.....	20 %
Back Saws.....	20 %
Wood Saw Blades.....	20 %
Framed Wood Saws and Bucks.....	20 %
Web and Wood Saw Frames.....	20 %
Butcher and Hack Saws.....	20 %
Butcher Saw Handles.....	20 %
Saw Handles and Screws.....	20 %
Try Squares and Bevels.....	50 %
Gauges.....	50 %
Screw Drivers and Ferrules.....	50 %
Plumbs and Levels and Level Glasses.....	50 %
Trammel Points and Plumb Bobs.....	50 %
Superfine Files.....	30 %
"Vautier" Tools and Files.....	30 %
Files and Rasps.....	60 %

The following is the discount sheet of the Harvey W. Peace Company, Brooklyn, N. Y., to which reference was made in our last issue:

Pages 10 to 14, inclusive.....	Dis. 45 %
" 15.....	25 %
" 16.....	net.
" 17.....	25 %
" 18 to 28 inclusive.....	45 %
" 29 to 58 ".....	25 %
" 60 to 71 ".....	25 %
" 71, Saw Sets.....	40 %

The manufacturers of Stove Boards have disposed of their patents, franchises and stocks of goods and materials to a new company organized for that purpose under the name of the American Stove Board Company, with offices at 110 Ontario street, Chicago, and 283 Pearl street, New York. This action was the natural result of the unremunerative condition of the trade for the past three years, prices having been reduced below cost by excessive competition. We are advised that no trust has been formed, but that a stock company of a perfectly legitimate business character will conduct the business of manufacturing and selling the Stove Boards heretofore made by the half dozen or more establishments engaged in this line. Prices have been fixed on the basis

of those ruling in 1887, when material and labor were even cheaper than now, so that it cannot be charged that they have been put at an exorbitant figure.

The discounts to the ordinary trade are as follows:

Wood Lined Crystal.....	50 %
" Oxidized.....	45 %
" Embossed.....	50 %
Paper Lined Zinc.....	55 %
" Embossed.....	55 %
" Crystal.....	55 %
" Oxidized.....	45 %

The Alford & Berkele Company, 77 Chambers street, New York, who are sole agents for the manufacturer, F. A. Howard, Belfast, Maine, issue a circular relating to the Allard and Electric Spiral Screw Drivers, several illustrations of each of which are given. The Allard is referred to as the original Spiral Screw Driver, and its original form is illustrated. The quality or material and workmanship and advantages connected with the use of this tool are also pointed out. The following is the price-list of the Allard Drivers, which is subject to a discount of 33½ per cent., terms 60 days, or 2 per cent. off for cash in ten days, f.o.b. factory or New York:

No. 1. Brass Cylinder Black Walnut Handles, per dozen.....	\$27.00
No. 2. Nickeled Cylinder Black Walnut Handles, per dozen.....	30.00
No. 3. Brass Cylinder Rosewood Handles (small size), per dozen.....	27.00
No. 4. Nickel Cylinder Rosewood Handles (small size), per dozen.....	30.00

The Electric Spiral Screw Driver is made on the Allard principle, but is offered at a much lower price, the tubes being shorter and handles longer, and the other mechanical details cheapened. The following is the price-list of the Electric, which is subject also to a discount of 33½ per cent.:

No. 1, large size, per dozen.....	\$18.00
No. 2, small size ".....	15.00

Export Trade.

The export trade in South Africa and Australia still continues fair. Trade in the Australian colonies shows signs of picking up, and a demand is being stimulated which will reduce the stocks now held by the importers in Melbourne and Sydney.

In Melbourne the Hardware importers were obliged to form a combination, in order to keep prices up to a point that would show a fair profit, as the dull times, together with the large stocks on hand, led to considerable cutting on the part of some houses, in some instances goods being sold below cost in order to reduce stocks. This the association has stopped in a great measure, and as their object is not to raise prices above a fair profit, which is proved by the fact that few advances have been made in prices beyond those ruling before the dullness of trade caused prices to be cut down to a figure that left little or no profit, it has proved to be a benefit to business.

The imports for the past five months show a great falling off when compared with the same period of last year, but when trade revives the probability is that the importers will send home large orders, and we hope to see a great increase in the imports for the balance of the year, and that the total imports for the year will exceed that of 1889.

Considerable comment has been caused in this city among the Australian shippers upon the course adopted by the Australasian-American Shipping Company, Limited, in chartering a steamer for the Australian market. This is a radical departure, and is a desperate step in the fight now waging between the old lines and the new. It will result in putting into the market at once goods ordered for future delivery, and consequently orders will be held back after the arrival of this steamer in those markets. We learn that rates will be 21 cents per cubic foot, but it is questionable whether the venture will prove profitable or meet the approval of the trade in the colonies.

We learn on good authority that an English company propose starting an Axe and Tool manufactory in Australia, for the purpose of making Axes, Hatchets, Hammers, Chisels, &c. The establishment of such an industry might prove disastrous to the sale of American goods of a similar nature, as American machinery, and probably American workmen, would be employed to a certain extent, and there will be no question as to their ability to make satisfactory Tools, at least good enough to answer the purpose. For many years the export trade in this particular line has been extremely profitable to American manufacturers engaged in it, and it is to be regretted that the good profit which has hitherto been theirs should now be destroyed by competition. We question if the venture will prove profitable to the English company, but, carried into effect, it cannot but work serious injury to the makers here, not only in the Australian trade but in other markets as well.

Obituary.

Henry Hale, senior member of the Hardware firm of Henry Hale & Co., Salem, Mass., died Tuesday, July 8. Mr. Hale was born in Salem in 1808, and was, therefore, 82 years of age. He had been in active business on Essex street in that city as a Hardware dealer for about 62 years. In 1822 Mr. Hale entered the employ of Samuel Colman, who kept a Hardware and Gun store. He was next employed as a clerk by Colman & Johnson, dealers in crockery, and in 1827 was offered a store in a building owned by John Derby, who established him in business for himself, the title of the firm being J. & H. Hale, the former being a brother of the deceased. Mr. Hale was afterward in company with his brother-in-law, Samuel W. Stickney, and later took his sons, Henry A. and Joseph, into partnership with him. From the tone of the tributes which are paid to his memory it is evident that Mr. Hale was a man of integrity and principle, and much interested in public affairs and the elevation of his fellow men. The business will hereafter be conducted by Henry A. Hale.

Items.

We are advised that Geo. P. Heckel & Co., St. Louis, Mo., have been incorporated under the name of the Heckel Hardware Company, with a paid up capital of \$75,000. The stockholders of the company are Geo. P. Heckel, Chas. Fattman, Jr.; Gus. Krug, H. A. Lueking and Louis Brinkwirth, and at their meeting Tuesday, July 8, the following officers were elected: Geo. P. Heckel, president; Chas. Fattman, vice-president and treasurer, and

H. A. Lueking, secretary. The new company will continue business at the old stand until their new building on Twelfth and Locust streets is finished. They have secured the services of nearly all the salesmen formerly in the employ of the Hilger Hardware Company, who have retired from business, and are going more extensively into the jobbing business than heretofore.

The consolidation of the interests of the Oliver & Roberts Wire Company and the Pittsburgh Wire Nail Company. Pittsburgh, Pa., to which we have already referred, is formally announced in a circular dated July 1. The officers of the Oliver & Roberts Wire Company, which is the title of the new organization, are as follows: Henry W. Oliver, president; George T. Oliver, vice-president; W. H. Cassidy, treasurer; Stephen W. Tener, secretary, and Henry Roberts, general superintendent.

Hibbard, Spencer, Bartlett & Co., of Chicago, call attention to the fact that they are handling a new Binder Twine, manufactured by the Empire Cordage Company, of Champaign, Ill. It is made exclusively of American hemp, and the factory is stated to be independent of any corner, trust or combination. This Twine is known as the Red Elephant brand. It is highly endorsed by farmers of Illinois, who used it last year. We are in receipt of some very neat cards from the same house advertising a new pattern of Pocket Knife which they have just brought out. The large blade has a globe etched on it, with the word Chicago across its face, and surrounding it is the legend, World's Fair, 1892-1893. This firm have also recently added a stock of Spectacles and Eye Glasses. They furnish with these goods full instructions how to fit Glasses to suit the vision of those requiring such aid.

The Boston Warehouse of Randolph & Clowes, in charge of G. F. Hickmott, has been removed from 38 Oliver street to 191 High street, Fort Hill Square, where a larger stock of seamless and Brazen Tubes, Sheet Copper and Sign Brass will be kept on hand and more office room occupied.

It will be observed in the announcement on page 64 that the Electric Cutlery Company, 91 Chambers street, New York, call attention to the fact that they have purchased the plant of J. M. Paulson, manufacturer of Barbers' Spring Razor Strops, specialties, &c., and that they have moved their plant to the Newark factory, the services of Mr. Paulson being retained.

The Washburn & Moen Mfg. Company, of Worcester, Mass., New York City and Chicago, have opened a branch office in Room 415, Lewis Block, Pittsburgh. It is in charge of E. V. Powers.

A company is being organized in Chicago for the manufacture of Axes, Hatchets, and other edged tools. It will be styled the Chicago Axe Company. The projectors of the company are now seeking a convenient and suitable location for a factory with a view to beginning operations at an early day. William C. Pullman, Phenix building, is one of the parties interested.

The Standard Fiber Ware Company, of Mankato, Minn., have put on the market a new milk pan and a prison pail. Samples of the latter are now being sent to the trade. We have received from the company specimens of picture cards which they are issuing for advertising purposes. They comprise finely lithographed views of scenes in New York harbor, such as the Battery, the Statue of Liberty, the forts, and the East River bridge.

The Cleveland Rubber Company, Cleveland, Ohio, issue a convenient illustrated price-list of 60 pages. It is worthy of

note that it is the production of their own printing department, even including the illustrated cover. Reference is made to the large line of Mechanical Rubber Goods made by them, concerning which full descriptions are given. In addition to this they manufacture full lines of all kinds of Rubber Clothing, from fine Silk Garments for ladies to heavy Drill Coats and Horse Covers, and also a partial line of Druggists' Sundries. The company are from time to time adding something new to their line of manufactures, the latest addition being a seamless Rubber Hose, which is regarded as a great improvement on the regular goods. The pamphlet contains a variety of useful information in regard to the goods to which it relates. Some remarks in regard to Steam Hose are of special interest, and a table is given showing degrees of heat accompanying different pressures, as follows:

30 pounds pressure.....	350°
60 pounds pressure.....	292°
80 pounds pressure.....	312°
100 pounds pressure.....	327°
120 pounds pressure.....	341°

They also advise that where a pressure of 25 pounds or less is used, 4-ply should be ordered for 1½ and smaller sizes, and that 5-ply should be ordered for 1½ and larger sizes. Where a pressure of 60 pounds or less is required 5-ply should be ordered for 1½ and smaller sizes; 6-ply should be ordered for 1½ and larger sizes. Where pressure exceeds 60 pounds add one additional ply to above for every 10 pounds of steam. Where 90 pounds or more steam pressure is required the Hose in addition should be wire bound. If wire bound a less number of plies will answer. The catalogue also contains other interesting information.

The Woolley & Moore Company, 80 Reade street, New York, have altered their firm name, and they will hereafter be known as the Woolley, Baynon & Moore Company. No change has been made in the membership of the company or its management. We are advised by the company that they have had a very good business year, and they express the hope that their friends will continue to treat them as well in the future as in the past.

J. H. Sternberg & Son, Reading, Pa., have sold their Screwdriver plant, including machinery, tools and all of the stock of Perfection, Acme and Ideal Screwdrivers, finished and unfinished, made under the Chantrell patents, to the Knapp & Cowles Mfg. Company, of Bridgeport, Conn., who will hereafter continue the manufacture of these goods, and intend to maintain the high standard of quality which has characterized them. It is intimated also that, if possible, improvements will be made in them. The company are now in a position to supply the trade.

Relating to methods by which retailers may advertise their business, we have received from a salesman connected with a North Carolina Hardware house a copy of a circular such as he sends out to his customers and buyers in general. In this circular a cordial invitation is given to visit the store and examine the stock. Their attention is then directed to Farm Wagons, Road Carts, &c., and it is intimated that it will always be a pleasure to show goods, &c. The direct and cordial tone of the circular is well calculated to make a pleasant impression upon the party receiving it and to induce inquiries and purchases.

By the burning of the Security Warehouse, in Minneapolis, 15th inst., 500 tons of Binding Twine, owned by the National Cordage Company, were destroyed, besides much agricultural machinery owned by various parties. The loss of the Cord-

age Company is \$235,000; the total loss about \$1,000,000. This includes loss of L. Waterbury & Co., New York, \$100,000.

Catalogues, Price-Lists, &c.

The Standard Hub Company, Germantown, Pa., advise us they are prepared to furnish thoroughly seasoned Hub Blocks and Finished Hubs of high grade. Referring to their improved process of seasoning, they allude to it as such that they can raise the grade of stock treated, and solicit the green stock of manufacturers to season for them.

The Harrisburg Handle Company, Harrisburg, Pa., send out a list of Axe, Pick, Sledge and Hammer Handles. These Handles are made both for the domestic and export trade. Having a large market, with various needs, their stock is made up of many styles of Handles to meet this demand.

New York Stamping Company, Brooklyn, E. D., N. Y., have issued their illustrated price-list for 1890. It represents the well-known Acme Fry Pans, a large assortment of Stove Shovels, the Magic Sink Cleaner, Zero and Starlight Stove Lifters, patent Solid Garden Trowel and the Empire Cold Handle Steel Spiders, a line of goods which they have recently put on the market. These Spiders are described as made from cold rolled wrought steel of the highest grade and finish, and stamped from a single piece and polished perfectly smooth and bright. The thickness of the steel of which the Spiders are made (No. 14 Standard Gauge) is referred to as insuring them against breaking, bending or warping. Another important feature to which attention is directed is that they are made without rivets, and consequently cannot leak or the handles become loose. The handle is reinforced and finished in an attractive manner, with a cover made of heavy tin, making it hollow, ventilated and not liable to become heated. These Spiders are referred to in the advertisement of the company, which may be found on page 59, where attention is called to the special features and advantages of this line of goods.

The Hazard Mfg. Co., Wilkes-Barre, Pa., with New York office, 87 Liberty street, issue a catalogue and price-list of their goods. They manufacture Wire Rope of Steel and Iron for Elevators, Planes, Shafts, Bridges, Ferries, Ships' Rigging, Tramways, Transmission of Power, Underground Haulage and Cable Roads. This business was established in 1848.

The Hotchkiss Bolt and Nut Company, Greensburg, Pa., issue a well printed price-list, showing the Bolts, Nuts and Washers which they are manufacturing. In sending out their first catalogue they call attention to the fact that they are now using the most approved appliances of their own and other invention for the manufacture of Bolts, Nuts, &c., and having built an entirely new and thoroughly equipped factory, their facilities are such as to enable them to handle large orders with ease and dispatch. Their long and thorough acquaintance with the

trade is also referred to. The catalogue is compactly arranged, and the insertion of labels gives a pleasant variation. These labels, by the way, are admirably devised, the sizes of the goods being indicated in very large figures, which are legible at a considerable distance.

Haff & Walbridge, 76 and 78 Leonard street, N. Y., factory 345 to 349 Classon avenue, Brooklyn, N. Y., issue an 1890 50 page illustrated catalogue of the Notion, Stationary, Hardware and Druggists Sundry Articles manufactured by them. Attention is called to their line of Hair Curlers, as they have novelties in this line intended for the Hardware trade.

The Harris Metal Wheel Company, Toledo, Ohio, manufacturers of Express Wagons, Velocipedes, Toy Barrows and Girls' Tricycles, also Steel Wire Wheels of all kinds, with and without rubber tire, issue an illustrated catalogue and price-list for 1890. Particular attention is directed



J. F. WOLLENSAK.

to their Doll Cab, Express Wagon and Carriage Wheels. They allude to the fact that a broken spoke can be replaced in these wheels without taking the wheel apart. Their patented Rubber Tire is referred to as not being stretched on the wheel, but held between the flanges in its natural state, and not liable to open or separate when cut.

B. Goloeckler, 1117 and 1119 Penn avenue, Pittsburgh, Pa., manufacturer of John Wagner's Butchers' Tools, Machinery and Supplies, issues an illustrated price-list of these goods. These include Meat Racks, Stuffers, Pork Fat Cutters, Lard Presses, Hoisting Apparatus for slaughter houses, together with a large line of tools and appliances for the butcher business.

The Grand Detour Plow Company, Dixon, Ill., send their price-list for the fall trade 1890. They have recently added to their line of goods Disk Harrows. Attention is also directed to their little Yankee Three-Wheel Plow. This they intimate is receiving attention from the trade.

J. F. Wollensak.

J. F. Wollensak, of Chicago, the subject of this sketch, is well known to the Hardware trade as a manufacturer of specialties, and we take great pleasure in presenting herewith a most excellent portrait of him. The leading articles which he manufactures are Transom Lifters and Electrical and Mechanical Locksmiths' and Bellhangers' Supplies. Mr. Wollensak was born in Albany, N. Y., in 1847, removed West when very young and located in Chicago in 1860, making his first practical acquaintance with business life in connection with the manufacture of Locks. His first earnings were \$1 a week. In 1868 he started in business for himself at 120 Randolph street, beginning on borrowed capital and, of course, in a small way. He possessed no advantages in any way, but relied solely on his business knowledge and native energy and pluck. In 1871 he lost everything in the great fire and was obliged to begin over again.

Two days after the fire he opened up a new establishment on West Randolph street, near the Haymarket. Six months afterward he removed to La Salle street, opposite the Grand Pacific Hotel, whence he removed in 1881 to his present place of business, on the southwest corner of Lake and Franklin streets, which is a very central and convenient location. At first he occupied the corner property alone, No. 225 Lake street, but in time the expansion of his business caused the absorption of No. 227, which was followed speedily by the acquisition of No. 229. This block of buildings is 60 x 100 feet, consisting of five stories and a basement, all devoted to Mr. Wollensak's business. Four stories are used for manufacturing, and the remainder is devoted to warehouse purposes and the salesroom. Mr. Wollensak's trade now covers the whole of the United States and Canada. He also exports largely to foreign countries through New York and Boston shippers, enjoying a fine and very steady trade in Australia. He was the

originator of the Transom Lifter, which is now such a staple article. Previous to the introduction of the Transom Lifter, the transom was but little used for ventilation, being generally nailed fast, so that it has been said of Mr. Wollensak that practically he was the inventor of the transom. He has always been active, enterprising and progressive, quick to perceive the wants of the trade and ready to adopt new ideas and to take advantage of the rapid development of modern mechanical thought. He is an inventor of a number of valuable devices, and attributes much of his success to the fact that he does his own inventing, allowing no experiments to be carried on by his workmen at his expense. He possesses in himself the rare combination of a successful inventor of useful articles, with the commercial ability to put them on the market.

"The Parson's Letters."

This is the title of a pamphlet by S. A. Haines, of the S. A. Haines Company, 90 Chambers street, New York, who is

widely known as a Hardwareman, and for the past few years as an active temperance worker. It is dedicated to commercial travelers and contains an interesting collection of articles which are described as "Gleanings from a pilgrimage of over 30 years with the grip on both sides of the Atlantic." Under such headings as these: Failure, Moral Character, Show Your Colors, Lend a Hand, the European Commercial Traveler, Sunday on the Road and others, the evils of intemperance are portrayed, and earnest appeals, illustrated by many incidents made on behalf of temperance, especially among commercial travelers. The book is thus characterized by an earnest purpose and is well and forcibly written. It also contains many well-told stories and illustrations and incidents, of which effective use is made.

Binder Twine.

We have received from a correspondent in this State the following letter in reply to the inquiries which were printed in our last issue in regard to the sale of Binder Twine, with a special reference to the cost of the wrappings:

We make it a rule to explain to customers that bales of Twine weigh 50 or 60 pounds, as the case may be, including sack and string, and as we pay the manufacturer at this rate must sell in the same way, and in less than bale lots at the rate of 5 pounds per ball, 12 balls in bale, making 60 pounds, as the Twine we sold this year was put up. We understand the farmer is paying for what he does not get, and, on the other hand, suppose the manufacturers argue they cannot afford to bale the Twine without making charge for baling.

Catalogues, Price-Lists, &c.

The Stoughton Wagon Company, Stoughton, Wis., issue a catalogue of the Farm and Spring Wagons, Carriages, Buggies and Oscillating Bob Sleighs manufactured by them. In their notice to the trade, attention is called to the fact that the company manufacture everything from a Farm Wagon to a fine Carriage, and are thus enabled to embody a large assortment of vehicles in the same shipment. The catalogue is fully illustrated, with satisfactory descriptive text.

Since an illustration of the Rival No. 1 Apple Parer was given in *The Iron Age*, some two years ago, the manufacturers, Kelsea & Co., Antrim, N. H., advise us they have put a new Parer on the market, known as Rival No. 2. The No. 2 Parer is alluded to as having the same appearance as No. 1, but pares, cores and slices with three turns of the crank, while No. 1 requires four turns to do the same amount of work. The grind rod and stud pins in No. 2 are referred to as being made of steel. Hamilton & Mathews, Rochester, N. Y., are general agents for the sale of these machines.

The Graphite Lubricating Company, Jersey City, N. J., with factory at Bound Brook, N. J., issue an illustrated catalogue of their Bushings, Bearings, Collars, Washers, &c. A large portion of the book is devoted to testimonials received from those who have used these goods in their various forms. The advantages claimed for the anti-Friction Bushings, Journal Bearings, Washers and Boxes for Carriage and Wagon Axles as made by them are that they require no oil or grease.

The Standard Tool Company, Athol, Mass., issue an illustrated catalogue and price-list for 1890 of Mechanics' Fine Tools, manufactured by them. They also make a specialty of Instruments for Accurate Measurements. This catalogue is of convenient size and gives detailed descriptions of many of the Tools.

The Parkin & Bosworth Company, 9 and 11 South Water street, Cleveland, Ohio, dealers in Manufacturers' Supplies, Machinery and Tools, Electroplaters' and Polishers' Supplies, issue a large and comprehensive illustrated catalogue and price-list, to which they refer as containing nearly everything which can be properly classed under the head of supplies. It is their intention to carry everything enumerated in this catalogue in stock, that they may be able to supply users without the least delay.

Haight & Clark, Albany, N. Y., manufacturers of Wire Workers' Castings, issue a catalogue illustrating these goods. In addition to these, we are advised, they make all kinds of Iron and Brass Castings to order from patterns furnished them. They also do Nickel and Brass Plating and Japanning Piano and Organ Hardware, Pedals, Pedal Guards and Plates; they also furnish complete.

The Empire Mfg. Company, Forestville, N. Y., manufacturers of Step Ladders, Wash Benches, Clothes Bars, Ironing and Pastry Boards, refer to their goods as being made of carefully selected clear stock. Allusion is made to their large stock of out door seasoned lumber and complete stock of everything in their line ready for immediate shipments.

The Harrison Machine Works, Belleville, Ill., issue an annual catalogue, illustrating the machines manufactured by them. These consist of Belleville Thrashers, Jumbo Engines, Dingee-Woodbury Horse-Powers and Swinging Straw-Stackers. These goods are referred to as being favorably known over the entire Mississippi valley, the manufacture of them having begun in 1848.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Paints and Colors.

Speaking in a general way, trade has been rather quiet the past week, yet the distribution of the more staple lines of Paints, Colors and Oils seems to be quite as full as customary at this season of the year, and remarkable steadiness characterizes values for most commodities. The White Lead situation is still rather perplexing and there are again rumors of "cutting" of prices on Linseed Oil in New England that causes some feeling of uncertainty on that article, although local manufacturers do not appear inclined to grant any concession. Otherwise there are influences that would tend to impair confidence in the slightest degree, and the outlook is considered favorable for steady prices in the near future.

Linseed Oil.—City manufacturers' prices remain at 62¢ for Domestic Seed and 64¢ for Calcutta Seed Raw Oil, with the usual 2¢ additional for boiled. Some out of stock comes this way, but the outlet for it is small, apparently, and 59¢ is a not uncommon price. The latter, however, is 1¢ @ 2¢ above prices at which sales are said to have been made at in Boston. Latest reports indicate a large crop of American Seed, but manufacturers do not appear inclined to discount that circumstance by offering Oil for future delivery at lower prices.

Cotton Seed Oil.—Exporters have manifested slightly more interest in "off"

grade Summer Yellow, taking about 500 barrels during the week. Besides this, about 800 barrels low grade Crude have been taken for home use. However, prices seem to be a shade weaker in the face of the better sales and the destruction of about 2000 barrels of oil in the South by fire. Current prices for prime Crude at 31¢ @ 32¢ and 36¢ is taken for prime Summer Yellow in 25 barrel lots.

Menhaden Oil.—Contracts have been made for 3000 to 4000 barrels new Crude for further delivery. No particulars were divulged, but it is understood that the transaction was for export account. In any event the fact of interest being shown at this period serves to give the market more tone, and unless the season's catch turns out much heavier than it has thus far, present prices will likely be minimum figures for the year. There has been no change in the prices for the manufactured products.

Lard Oil.—City pressers' prices have remained stationary in the absence of any radical change in the cost of raw material or unusual competition from outside brands of Oil. The demand is of about the usual volume.

Sperm and Whale Oils.—The position of crude product is unchanged and former prices are repeated for the Manufactured Oils. Apart from the ordinary jobbing movement there is little doing.

Cocanut, Olive and Palm Oils are quite firmly held at last week's prices, but selling in a moderate way only.

Red Saponified Oil has been sold at 4½¢ to the extent of about 100 barrels.

Spirits Turpentine.—Prices have advanced here to 42½¢ @ 43¢ under the influence of strong advices from primary markets and a reduction in spot supply to about 750 barrels. The home trade movement is said to be good and export interest fair.

White Lead.—Rumors have had circulation that the National Lead Trust was about to make a uniform price for all quantities of White Lead in kegs manufactured by their corrodors. No change has been made, however, and at headquarters it is denied that any is contemplated. It is stated that the active San Francisco "outside" corrodor has little if any more Lead to spare in the Eastern market, and also that the concern has purchased some of its own product from local jobbers to employ for certain purposes in the East. However, jobbers are still selling the Trust products in small lots at 5-ton and 12-ton prices, thus keeping the market in an unsettled condition, and inferior Pigment continues to be urged for sale. Trust officials state that returns coming from the various corrodors show larger sales last month than for June, 1889, and the presumption is that there has been more or less turning about from "cheap Leads" to the pure article since the June prices and terms went into effect.

Zincs.—For domestic Oxide there has been probably the average demand, and prices remain very steady for all grades. Prices for foreign are also unchanged.

Colors.—The movement of House Painters' Colors is rather slow at the present time, and confined chiefly to the more staple varieties. Grinders' Colors are also quiet. However, there seems to be the average July distribution, and prices are, for the most part, quite steady. Deliveries of Paris Green are good, but new orders are chiefly for small quantities.

Miscellaneous.—Chalk for future delivery is still freely offered at \$2 ¾ ton, and spot lots can be purchased at or very near that price. Whiting and Paris White are sold at former prices. There is no change on Barytes, Terra Alba or Talc.

The Dexter and Daisy Bicycles.

Horton, Gilmore, McWilliams & Co., Chicago, Ill., are putting on the market the Dexter and Daisy Bicycles, as illus-

is the same as that of the Dexter, except that the combination diamond frame has a detachable brace rod, converting the machine into a deep loop framed ladies' bicycle, and, in addition, has lace guard to

The Bowe Spoke Extractor.

S. W. Kent, Meriden, Conn., is manufacturing this article, which is illustrated herewith. Mr. Kent states that the call for a machine of this kind comes from the fact that the wheelmakers are constantly making their wheels better in their efforts



Fig. 1.—The Dexter Bicycle.

trated herewith. The Dexter, Fig. 1, is intended for gentlemen only. We are advised that this machine is constructed of the best materials, workmanship and finish obtainable, and that no expense has been spared to make an exceptionally fine wheel for its price. Allusion is made to the fact that the designing of every part of these machines has received the greatest care. A brief description of the machine is thus given:

Thirty-inch wheels, $\frac{3}{4}$ -inch endless molded tires of the very finest and most expensive rubber, rims of the most improved crescent pattern, No. 10 direct spokes, double ended and nickel plated, adjustable ball bearings all around, combination diamond frame of steel tubing, adjustable crank and chain driving gear, Humber hardened chain, detachable and adjustable cranks of 6 to 7 inches throw, ball pedals of finest rubber made, curved steel

the gearing. Both these bicycles are referred to as entirely new this season.

Straight and Circle Spoke Shaves.

The Cincinnati Tool Company, Cincinnati, Ohio, are introducing No. 9 and 10



Fig. 1.—No. 9 Spoke Shaves.

spoke shaves, as illustrated herewith. The No. 9 is described as having two surfaces, one for straight and one for circle work, the same knife being used for both. The smallest circle that can be cut with

that the legs can rest against the bands, no matter what the size of the hub. We are advised that seven spokes have been cut off and pulled out by this machine in two minutes. The turning of the screw both clamps the spoke and pulls it straight, there being no twisting motion. The point is also made that this machine will save its cost each month in a repair shop where one man works on wheels, and more or less in proportion in larger or smaller shops. The large size extractor will pull any spoke from $\frac{1}{4}$ -inch to $3\frac{1}{2}$ inch, and the smaller size any spoke up to 2 inch.

St. Louis has no cause to be dissatisfied with the census enumeration. Her population is ascertained to be over 448,000, as compared with 350,000 in 1880, showing an increase of about 28 per cent. in the past ten years. None of this growth, moreover, has been due to an absorption of territory, for the boundaries of the city have not been changed since the count of 1880 was made. The increase in population, says the *St. Louis Globe-Democrat*, has been accompanied by a greater growth in the business, financial standing and prestige of the community than was achieved in any recent ten-year period, and gives promise of a still more striking and important development in the decade on which we are entering. The official estimate of the population of Boston is 437,242; the census figures in 1880 were



Fig. 2.—No. 10 Spoke Shaves.

No. 9 is alluded to as $1\frac{1}{4}$ inch in diameter. We are advised that the very best grey iron is used for the body of the shave, with malleable cap, solid knife of Jessop's best tool steel, well tempered, with well

finished mahogany handles with nickel ferrules. The No. 10 shave is intended for very small circles, and is referred to as cutting any circle from $1\frac{1}{4}$ inch up. We understand it is made of the same material as No. 9 and finished the same way.

362,369. The population of Albany, New York, according to the census, is 92,468, an increase of 1565 on 1880. Troy has a population of 60,587, a gain of 3840 in ten years. The population of Louisville, Ky., is estimated at 185,000.



Fig. 2.—The Daisy Bicycle.

tubular handle bar, vulcanite handles, adjustable plunger brake, English saddle of most improved pattern, adjustable lamp bracket, improved coasters, guards to both wheels, tool bag with wrench, oil can and screw driver; gear 51, 54, 57 or 60, as preferred; 54 will be sent unless otherwise specified; finish, finest enamel, striped with nickel plated trimmings; weight, 48 pounds.

The Daisy, Fig. 2, is for gentlemen or ladies, and is a convertible safety to meet the demand for a machine that can be ridden by any member of the family. It is referred to as sufficiently strong for heavy men, and yet as being very easy running for ladies, where it is not convenient for them to have a special wheel of their own. The description of the Daisy

Telegraph Blocks.

Walter Coleman & Sons, Providence, R. I., are introducing telegraph blocks, as illustrated herewith. These are intended for stretching telegraph wire, Fig. 1. The

larger than the inlet through the valve chamber that no back pressure can be created, and consequently no packing is required around the handle stem, and all parts are left free and untrammelled. The cut shows a cross section of their Bibcock,

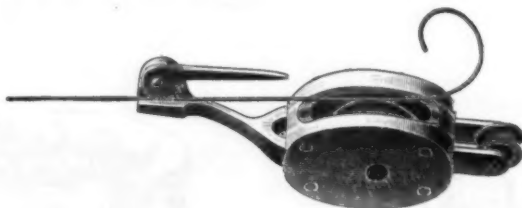


Fig. 1.—Telegraph Blocks, Single, with Grip Engaged.

grips are referred to as being forged from cast steel and tempered, and the straps as being genuine bronze, of a design to combine strength and light weight. The blocks are alluded to as being light, compact and strong. They are made in two sizes—3½ and 4 inches for ½-inch rope.

displaying the workings of the faucet. The point is made by the manufacturers that a desirable feature of the faucet is that the central or valve section is the same in all styles, bit, basin and urinal. A good and thoroughly reliable self closing water faucet is a great desideratum. Not one-half as much water will be drawn through faucets when the flow will stop with the

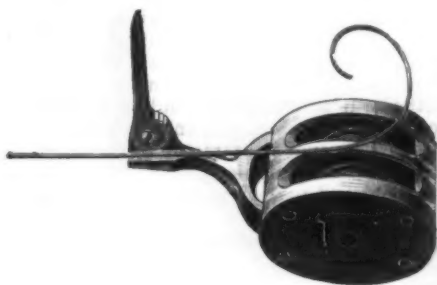


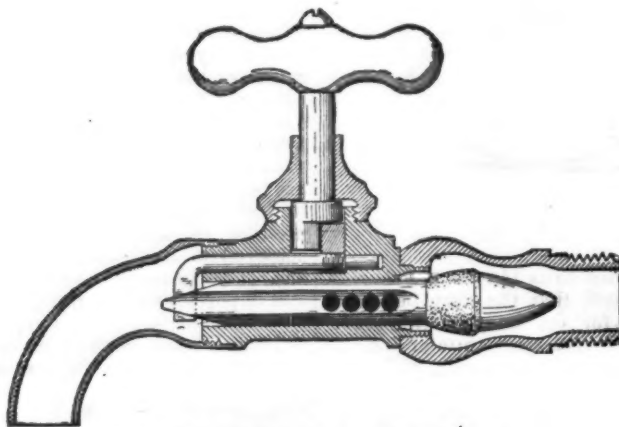
Fig. 2.—Telegraph Blocks, Double, with Grip Engaged.

One single and one double block constitute a pair, Fig. 2.

The National Self Closing Water Faucet.

The Midland Brass Works, Kansas City, Mo., are introducing the National Self Closing Water Faucet, invented by F. B. Ray. It is illustrated herewith. It is alluded to as having a simple and ingenious arrangement of the working parts, which obviates the necessity of packing the valve stem. The valve stem is, it will be seen, placed in a horizontal position in the water

removal of the hand. It is much more desirable that the valve close with the pressure of the water, and not against it, as it is difficult to adjust the spring to properly close against the varying pressure of the different cities, ranging as it does from 20



The National Self Closing Water Faucet.

way, and is operated by an auxiliary stem which is placed in a chamber above and parallel with it, and drawn back by a simple cam movement; the pressure of the water causing the valve to close instantly the fingers are relaxed. We are advised that the outlet for the water is so much

pounds to 140 pounds to the square inch. In many of the larger cities the water companies require self closing work to be used, also specify that the valve must close with the pressure. The faucet above described was the result of such a need, and is spoken of as filling all requirements.

The "Swift" Safety Spring Frame Bicycle.

The Coventry Machinists' Company, Coventry, England, of whom A. S. Hill is manager of the United States branch, 239 Columbus avenue, Boston, Mass., are introducing the Swift Safety Spring Frame, as illustrated herewith. The machine is referred to as having springs adjustable for riders of different weights, and by the arrangements of these springs every particle of vibration is absorbed before reaching the rider. From the cut will be seen the springs, the spring fork at the front fork, and in the rear two spiral springs, which work vertically by means of centers placed directly behind the crank-shaft bearing bracket. This absorption of vibration is alluded to as saving the wheels the shock in striking stones and other obstructions, and the point is made that this machine, weighing only 40 pounds, will stand the hard work that any 50 or 55 pound machine could endure. Another advantage is described as being that no matter how large the obstruction, or how sudden the blow, the handle bar, saddle and pedals always remain in the same relative posi-



The "Swift" Safety Spring Frame Bicycle.

tions. The tempered roller chain, with which all swifts are fitted, is intended to reduce the friction to a minimum, and by means of the rollers the wear upon the chains is distributed over every part. Specifications of the machine, as given by the company, are as follows:

Two 28-inch wheels geared to 57-inch; 7-inch adjustable cranks. Patent ball bearings to all parts. Endless molded rubber tires in ½-inch hollow rims. Saddle and handle bar adjustable for height. Diamond frame of best quality cold drawn seamless steel tubing. Hollow handle bar. First quality horn handles. Adjustable plunger spoon brake. Detachable spring lamp bracket. Foot rests. Patent adjustable ball bearing socket head. Detachable and adjustable mud guards. Heavy butted direct nicked spokes. Brooks' International saddle, or Garford saddle, at option of the purchaser.

Captain Doane, after 20 years' nautical experience in the cotton trade, is enabled to speak from personal observation of the causes of many fires in cotton carriers. Most cotton fires, he says, are started by sparks made when the iron bindings on the bales strike the iron stanchions in the hold. He recommends covering the stanchions with cloth.

Yin Waa Wo, a wealthy San Francisco Chinaman, who has associated with him J. Moury, an attorney of that city, has purchased 15,000,000 acres of land on the Isthmus of Tehuantepec, Mexico, and will raise coffee, indigo, tobacco and tea.

The Economy Parlor Door Hanger.

The Syracuse Door Hanger Company, Syracuse, N. Y., are introducing the Economy Parlor Door Hanger, as illustrated herewith, Fig. 1. With this hanger the loop is swung forward on the screw and dropped over the hook on the plates. This is alluded to as permitting the hanging of single doors without

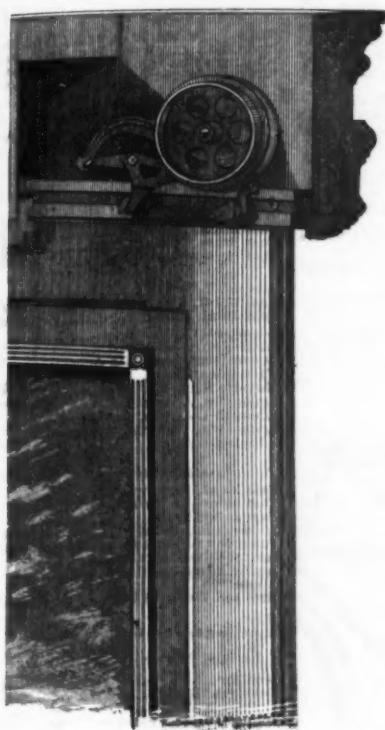


Fig. 1.—Economy Parlor Door Hanger.

making false pocket in front, by placing the pocket castings at the rear edge of the door opposite the hanger loop. The manner of fastening the hanger to the door is shown in Fig. 2, and is referred to as requiring no plowing or cutting of the

rise perpendicularly, the independent axle preventing the wheel striking the side of the studding, as would be the result when two wheels are fixed to one shaft. The manufacturers call attention to the following points of excellency, in addition to

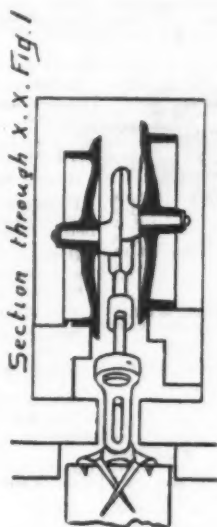


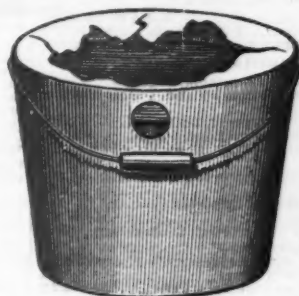
Fig. 3.—Hanger on Uneven Track.

those above mentioned: That the wheels are composition lined, that all parts are interchangeable, that the hangers have large bearings, and are noiseless in action. The fact that they are nickel plated is also referred to. They are put on the market with high claims as to their merit.

The Rice Fire Pail.

The Worcester Fire Pail Company, Worcester, Mass., whose New York office is at 12 Cortland street, J. Q. Maynard, manager, are manufacturing the fire pail represented in the accompanying illustration. This pail is designed for the effective extinguishment of fire, and in its com-

and amoniacal gases, thus quenching the fire and smothering the flame. Some of the points mentioned in regard to this pail are that it cannot freeze; cannot diminish in volume by evaporation; cannot deteriorate with age; cannot have its usefulness impaired except by violence, and cannot confuse or bewilder with complications, man, woman or child. The disk or cover is furnished independent of the pail and may be used in connection with any



The Rice Fire Pail.

other pail. A number of testimonials are given as to the merit of this chemical compartment pail for the purpose for which it is intended.

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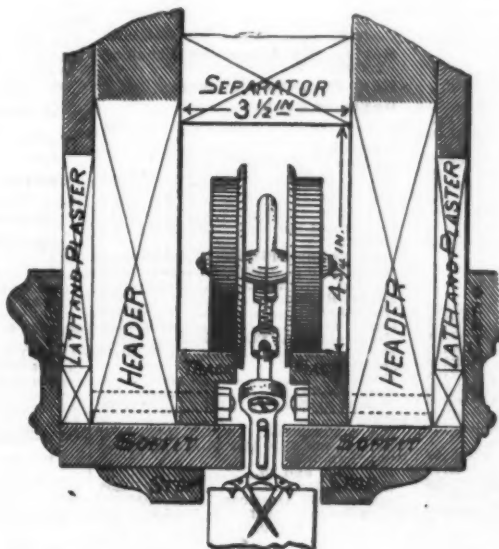


Fig. 2.—Through Section of Door Hanger.

doors. The point is made that each wheel of the Economy is on an independent axle, which arrangement is intended to overcome the trouble which results when one track settles more than the other. This is shown in Fig. 3, where it will be seen that the unevenness of the track causes the wheel of the Economy to

partments, ready to be mingled by the breaking in of the frangible disk, are three chemicals, which are referred to as known for their potency in subduing fire. They are mingled in their proper proportions in an aqueous solution, under the influence of heat, as they reach the fire are described as setting free carbonic acid gas, nitrogen

CURRENT HARDWARE PRICES.

JULY 16, 1890.

Notes.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers' name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.

Domestic..... \$ doz \$3.00, 33¢
Excelsior..... \$ doz \$10.00, 60¢10¢25¢
Washburn's Self-Locking..... 20¢20¢10¢

Ammunition.

Caps, Percussion, \$ 1000—
Sicks & Goldmark's and Union Metallic
Cartridge Co.
F. L. Waterproof, 1-10's..... 34¢35¢
E. B. Trimmed Edge, 1-10's..... 46¢48¢
E. B. Grad. Edge, Cent. Fire, 1-10's..... 46¢47¢

Musket Waterproof, 1-10's..... 50¢
G. D..... 28¢
B. Genuine Imported..... 45¢
ley's E. B..... 54¢ 55¢
ley's D Waterproof, Central Fire..... \$1.60

Cartridges—
Rim Fire Cartridges..... 50¢52¢2¢
Rim Fire Military..... 15¢2¢
Cent. Fire, Pistol and Rifle..... 25¢52¢2¢
Cent. Fire, Military and Sporting..... 15¢52¢2¢

Blank Cartridges, except 22 and 32 cal.,
additional 1¢ on above discounts.
Blank Cartridges, 22 cal., \$1.75..... 2¢
Blank Cartridges, 32 cal., \$3.50..... 2¢
Primed Shells and Bullets..... 15¢52¢2¢
B. R. Caps, Round Ball, \$1.75..... 2¢
B. R. Caps, Con. Ball, Swgd., \$2.00..... 2¢

Primers—
Berdan Primers, \$1.00..... 2¢
B. L. Caps (for Sturtevant Shells) \$1.00..... 2¢
All other Primers, \$1.20..... 2¢

Shells—
First quality 4, 8, 10 and 12 gauge..... 25¢10¢2¢
First quality, 14, 16 and 20 gauge (\$10
list)..... 50¢10¢2¢
Prize..... 40¢2¢
Star, Club, Rival and Climax brands..... 39¢10¢2¢

Seibold's Comb. Shot Shells..... 15¢2¢
I. X. L. 10 and 12 gauge..... 40¢52¢2¢
"Special," 10 gauge..... 30¢10¢52¢2¢
"Special," 10 and 12 gauge..... 40¢10¢2¢
Fowler's Pat..... \$3.25
Brass Shot Shells, 1st quality..... 60¢2¢
Brass Shot Shells, Club, Rival, Climax..... 65¢2¢

Shells Loaded—
Standard List..... 40¢10¢10¢5¢
Wads—Price per M.
U.M.C. & W. R. A.—B. E., 11 up..... 68¢
U.M.C. & W. R. A.—B. E., 9¢10..... 82¢
U.M.C. & W. R. A.—B. E., 8¢..... 94¢
U.M.C. & W. R. A.—B. E., 7..... \$1.10
U.M.C. & W. R. A.—P. E., 11 up..... 1.15
U.M.C. & W. R. A.—P. E., 9¢10..... 1.50
U.M.C. & W. R. A.—P. E., 8..... 1.70
U.M.C. & W. R. A.—P. E., 7..... 1.80
Eley's B. E., 11 up..... \$1.75
Eley's P. E., 11 up..... 2.80

Anvils—
Eagle Anvil, \$ 10..... 15¢15¢5¢
Peter Wright's..... 10¢4¢
Armstrong's Mouse Hole..... 9¢4¢
Armstrong's Mouse Hole, Extra..... 11¢11¢4¢
Trenton..... 9¢4¢
Wilkinson's..... 9¢4¢
J. & Riley Carr, Pat. Solid..... 11¢11¢4¢
Moore & Barnes Mfg. Co..... 33¢4¢

Anvil Vise and Drill—
Millers Falls Co., \$18.00..... 20¢
Cheney Anvil and Vise..... 25¢
Allen Anvil and Vise, \$3.00..... 40¢10¢
Star..... 45¢5¢

Apple Parers—See Parers, Apple,
&c.

Augers and Bits—
Douglas Mfg. Co..... 70¢10¢
Wm. A. Ives & Co..... 70¢10¢
Humphreysville Mfg. Co..... 70¢10¢
French, Swift & Co. (F. H. Beecher,
P. S. & W. Co.)..... 70¢10¢
Rockford Bit Company..... 70¢10¢
Cook's, Douglas Mfg. Co..... 55¢
Cook's, N. H. Copper Co. 50¢10¢50¢10¢5¢
Ives' Circular Lip..... 60¢
Patent Solid Head..... 30¢
C. E. Jennings & Co., No. 10, extension
lip..... 40¢
C. E. Jennings & Co., No. 30..... 60¢
C. E. Jennings & Co., Auger Bits, 7 set,
82¢ quarters, No. 5, 35; No. 30, \$3.50, 20¢
Lewis' Patent Single Twist..... 45¢
Russell Jennings' Augers and Bits, 25¢10¢
Imitation Jennings' Bits..... 60¢60¢5¢
Snell's Jennings Pattern..... 60¢
Pugh's Black..... 30¢
Rockford, Jennings' Pattern..... 60¢
Car Bits..... 60¢60¢10¢
Car Bits, P. S. & W. Co..... 60¢10¢
Snell's Car Bits..... 60¢
L. Hommedieu Car Bits..... 15¢10¢
Forster Pat. Auger Bits..... 10¢
Cincinnati Bell-Hangers' Bits..... 30¢10¢

Bit Stock Drills—
Morse Twist Drills..... 50¢10¢5¢
Standard..... 50¢10¢5¢
Cleveland..... 50¢10¢5¢
Syracuse, for metal..... 50¢10¢
Syracuse, for wood (wood list) 30¢30¢5¢
Williams' or Holt's, for metal 50¢10¢10¢
Williams' or Holt's, for wood..... 40¢10¢
Cincinnati, for wood..... 30¢10¢
Cincinnati, for metal..... 45¢10¢

Expansive Bits—
Clark's small, \$18; large, \$36..... 35¢35¢5¢
Ives' No. 4, \$ 10..... 40¢
Swan's..... 40¢
Steer's, No. 1, \$26; No. 2, \$25..... 35¢
Steer's, No. 2, \$48..... 20¢

Giant Bits—
Common..... \$ gross \$2.75¢23.25
Diamond..... \$ doz \$1.10..... 25¢10¢
Bee..... 25¢25¢5¢
Double Cut Shepardson's..... 45¢45¢10¢

Double Cut, Ct. Valley Mfg. Co..... 30¢10¢
Double Cut, Hartwell's, \$ gro..... 25.25
Double Cut, Douglass..... 40¢10¢
Double Cut, Ives..... 60¢60¢10¢

Hollow Augers—
Ives..... 33¢10¢
French, Swift & Co..... 33¢10¢
Douglass..... 40¢10¢
Bonney's Adjustable, \$ doz \$48..... 40¢10¢
Stearns..... 30¢10¢
Ives' Expansive, each \$4.50..... 50¢5¢
Universal Expansive, each \$4.50..... 30¢
Wool's..... 25¢10¢
Cincinnati Adjustable..... 25¢10¢
Cincinnati Standard..... 25¢10¢

Ship Augers and Bits—
L'Hommedieu's..... 15¢10¢15¢10¢5¢
Watrous..... 15¢10¢15¢10¢10¢
Snell's..... 15¢10¢15¢10¢5¢
Snell's Ship Auger Pat'n Car Bits..... 15¢10¢15¢10¢5¢

Awl Hafts—See Hafts, Awl.

Awls, Brad Sets, &c—
Awls, Sewing, Common \$ gr \$1.70, 35¢
Awls, Should. Peg, \$ gr \$2.45, 40¢40¢10¢
Awls, Pat. Peg..... \$ gr 65¢..... 40¢40¢10¢
Awls, Shouldered Brad, 2.70 \$ gr..... 35¢
Awls, Handled Brad..... \$7.50 \$ gr..... 45¢
Awls, Handled Scratch \$ gr, \$7.50, 35¢10¢
Awls, Socket Scratch, \$ doz, \$1.50, 25¢30¢

Awl and Tool Sets—See Sets, Awl
and Tool.

Axes—
First quality..... \$8.00..... \$8.50
Others..... 7.50..... 8.00
Note.—Jobbers often sell at lower
prices than the above.

Axle Grease—See Grease, Axle.

Axles—
No. 1, 4¢5¢, No. 2, 5¢6¢4¢
Nos. 7 to 14..... 55¢5¢
Nos. 15 to 18..... 47¢5¢ 3¢ cash
Nos. 19 to 22..... 70¢
Concord Axles, loose collar..... 5¢6¢
Concord Axles, solid collar..... 6¢7¢
National Tubular Self-Oiling..... 33¢4¢33¢4¢5¢

Bag Holders.—See Holders, Bag.

Balances—
Spring Balances..... 40¢
No. 2000 20 80
Chatillon, \$ doz..... \$0.80 0.95 1.75 net
Chatillon Straight Balances..... 40¢
Chatillon Circular Balances..... 50¢10¢

Bars—
Cast Steel..... \$ 2 44¢
Iron, Steel Points..... \$ 2 34¢

Basins, Wash—
Standard Fiberglass, No. 1, 10¢4-inch, \$2;
12-inch, \$2.25; 13½-inch, \$2.75; 15-inch,
\$3.25.

Beams, Scale—
Scale Beams, List Jan. 12, '82..... 50¢10¢
50¢10¢5¢
Chatillon's No. 1..... 40¢
Chatillon's No. 2..... 60¢
Custer's..... 33¢4¢

Beaters, Egg, &c—
Keystone, P.D. & C., Each, No. 1, \$1; No.
2, \$2..... 20¢
Dover..... \$ doz \$1.50
Duplex (Standard Co.)..... \$ doz \$1.25
Rival (Standard Co.)..... \$ doz \$1.00
Duplex Extra Heavy (Standard Co.)..... \$ doz \$5.50

Bells—
Cow—
Common Wrought..... 60¢10¢
Western..... 20¢10¢
Western, Sargent's list..... 70¢10¢
Kentucky, "Star"..... 20¢10¢
Kentucky, Sargent's list..... 70¢10¢
Dodge, Genuine Kentucky..... 70¢70¢10¢
Texas Star..... 50¢10¢50¢10¢5¢
Call..... 40¢40¢5¢
Farm Bells..... \$ 3 34¢34¢
Steel Alloy Church and School Bells..... 40¢

Door—
Gong, Abbe's..... 33¢4¢10¢
Gong, Yankee..... 45¢10¢
Gong, Barton's..... 40¢10¢50¢
Crank, Taylor's..... 25¢10¢
Crank, Brooks..... 50¢10¢25¢
Crank, Cone's..... 10¢
Crank, Connel's..... 20¢10¢
Lever, Sargent's..... 60¢10¢
Lever, Taylor's Bronzed or Plated..... net
Lever, Taylor's Japanned..... 25¢10¢
Lever, R. E. M. Co.'s..... 50¢10¢25¢
Pull, Brook's..... 50¢10¢25¢
Pull, Western..... 25¢10¢
Electric..... 20¢
Wollensak's..... 20¢
Bigelow & Downes..... 20¢
Taylor's..... 20¢

Hand—
Light Brass..... 75¢10¢
Extra Heavy..... 65¢10¢
White Metal..... 60¢10¢10¢
Silver Chime..... 33¢4¢10¢
Globe (Cone's Patent)..... 25¢10¢35¢

Bellows—
Blacksmiths'..... 60¢5¢65¢
Molders'..... 40¢40¢10¢
Hand Bellows..... 40¢10¢50¢

Belting, Rubber.

Common Standard..... 70¢
Standard..... 60¢10¢10¢70¢
Extra..... 50¢10¢80¢
N.Y.B. & P. Co., Carbon..... 50¢5¢50¢10¢5¢
N.Y.B. & P. Co., Diamond..... 40¢5¢40¢10¢

Bench Stops—See Stops, Bench.

Benders, Upsetters, Tire.
Stoddard's Lightning Tire Upsetters..... 15¢
Detroit Perfected Tire Bender..... 15¢

Bits—
Auger, Gimlet, Bit Stock, Drills, &c.,
see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters,
Blind.

Blind Fasteners—See Fasteners,
Blind.

Blind Staples—See Staples, Blind.

Blocks—
Ordinary Tackle, list May 20, 1889..... 50¢10¢60¢
Cleveland Block Co., Mal. Iron..... 50¢
Moore's Novelty, Mal. Iron..... 50¢

Bolts—
Carriage, Machine, &c.—
Common list June 10, '84..... 70¢10¢7½¢2¢
Genuine Eagle, list Oct. '84..... 75¢10¢80¢
Phila. pattern, list Oct. 7, '84..... 80¢80¢10¢
R.B. & W., old list..... 70¢
Machine, list Jan. 1, 1890..... 75¢10¢75¢10¢5¢
Bolt Ends, list Jan. 1, 1890..... 75¢10¢75¢10¢5¢

Door and Shutter—
Cast Iron Barrel, Square, &c..... 70¢70¢10¢
Cast Iron Shutter Bolts..... 70¢70¢10¢
Cast Iron Chain (Sargent's list)..... 65¢10¢
Ives' Patent Door Bolts..... 60¢
Wrought Barrel..... 70¢70¢10¢
Wrought Square..... 70¢70¢10¢
Wrt Shutter, all Iron, Stanley's..... 60¢10¢
Wrt Shutter, Brass Knob..... 40¢10¢
Wrt Shutter, Sargent's list..... 60¢10¢
Wrt Sunk Flush, Sargent's list..... 55¢10¢
Wrt Sunk Flush, Stanley's list..... 50¢10¢
Wrt B.K. Flush, Com'n..... 55¢10¢

Stove and Plow—
Stove..... 60¢
Plow..... 60¢5¢
R. B. & W. Plow..... 55¢

Tire—
Common, list Feb. 28, '83..... 65¢
Port Chester Bolt and Nut Company:
Empire list Feb. 28, '83..... 65¢
Keystone, Philadel., list Oct. '84..... 80¢
Norway, Phila., list Oct. '84..... 75¢
American Screw Company:
Norway, Phil., list Oct. 16, '84..... 70¢
Eagle, Phil., list Oct. 16, '84..... 80¢
Philadel., list Oct. 16, '84..... 80¢
Ray State, list Feb. 28, '83..... 85¢
R.B. & W., Philadel., list Oct. 16, '84..... 80¢

Borers, Tap.
Common and Rind..... 20¢10¢
Ives' Tap Borers..... 33¢4¢5¢
Enterprise Mfg. Co..... 20¢10¢30¢
Clark's..... 33¢4¢35¢

Borax..... \$ 2 94¢10¢4¢

Boring Machines—See Machines,
Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.
Per D..... 24¢

Braces—
American Bit Brace Co.:
Nos. 10, 12, 20..... 60¢10¢
Nos. 11, 21, 24, 27..... 70¢10¢
Nos. 22, 23, 25..... 60¢10¢5¢
Nos. 13, 26, 36, 37..... 70¢10¢10¢
Ball Braces, net..... \$1.12 to \$1.25

Barker's Imp'd Plain..... 75¢10¢80¢
Barker's Imp. Nickle..... 65¢10¢70¢
Ratchet..... 75¢10¢80¢
Eclipse Ratchet..... 60¢
Globe Jawed..... 40¢40¢10¢
Corner Brace..... 40¢40¢10¢
Universal, 8 in., \$2.10 10 in..... \$2.25
Buffalo Ball..... \$1.10 to \$1.15

Barber's
Nos. 10 to 16..... 50¢
Nos. 30 to 33..... 50¢
Nos. 40 to 63..... 50¢10¢

Barker's
Nos. 8, 10 and 12..... 75¢10¢80¢
Plated, Nos. 8, 10 and 12..... 65¢10¢70¢
Bartholomew's
Nos. 25, 27 and 30..... 50¢10¢60¢5¢
Nos. 117, 118, 119..... 70¢70¢5¢
Common Ball, American..... \$1.00 to \$1.10
Fray's Genuine Spofford's..... 50¢4¢50¢
Fray's No. 70 to 120, 81 to 123, 207 to 414..... 50¢10¢

Ives' New Haven Novelty..... 70¢70¢5¢
New Haven Ratchet..... 60¢5¢60¢10¢
Barber Ratchet..... 60¢5¢60¢10¢
Barbers..... 60¢5¢
Spofford's..... 60¢5¢60¢10¢
Oswald's Ratchet..... 40¢10¢50¢
P. S. & W. Co., Peck's Patent..... 60¢

Brackets—
Shelf plain, Sargent's list, 55¢10¢55¢
Shelf, fancy, Sargent's list, 60¢10¢60¢
Reading, plain..... 50¢10¢60¢10¢5¢
Reading, Rosette..... 60¢10¢60¢10¢10¢

Bright Wire Goods—See Wire.

Broilers—
Hens' Self, 1 Inch..... 0 10 0 11
Basting, 1 Per doz..... \$4.50 5.50 6.50
New Haven..... 50¢

Buckets, Well.

Galvanized—
Hill's..... \$ doz, 12 qt, \$4.25; 14 qt, \$4.50
Iron Clad..... \$ doz, 14 qt, \$4.25 to \$4.50
Whiting's Flat Iron Band..... \$4.25 to \$4.50
Whiting's Wired Top..... \$ doz \$4.00 to \$4.50

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See Cleavers
Butchers'.

Butts—
Brass—
Wrought Brass..... 75¢10¢80¢
Cast Brass, Tied..... 50¢
Cast Brass, Corbin's, Fast..... 33¢4¢10¢
Cast Brass, Loose Joint..... 33¢4¢10¢

Cast Iron—
Fast Joint, Narrow..... 50¢10¢50¢10¢
Fast Joint, Broad..... 50¢10¢50¢10¢
Loose Joint..... 50¢10¢50¢10¢
Loose Joint, Japanned..... 70¢10¢
Loose Joint, Jap. with Acorns..... 70¢10¢
Mayer's Rings..... 70¢10¢
Loose Pin, Acorns..... 70¢10¢
Loose Pin, Acorns, Japanned..... 70¢10¢
Loose Pin, Acorns, Japanned..... 70¢10¢
Plated Tips..... 70¢10¢

Wrought Steel—
Fast Joint, Narrow..... 50¢10¢50¢10¢
Fast Joint, Lt. Narrow..... 50¢10¢50¢10¢
Fast Joint, Broad..... 50¢10¢50¢10¢
Loose Joint, Broad..... 50¢10¢50¢10¢
Table Butts, Back Flaps, &c..... 70¢10¢
Inside Blind, Regular..... 70¢10¢
Inside Blind, Light..... 70¢10¢
Loose Pin..... 70¢10¢
Bronzed Wrought Butts..... 50¢

Calipers—See Compasses.

Calks, Toe—
Gautier..... \$ 2 54¢6¢
Dewicks (Burke)..... \$ 2 54¢6¢

Can Openers—See Openers, Can.

Cards—
Horse & Curry..... 10¢10¢10¢10¢
Cotton..... 10¢10¢10¢10¢
Wool..... 10¢10¢10¢10¢

Carpet Stretchers—See Stretchers
Carpet.

Carpet Sweepers—See Sweepers
Carpet.

Cartridges—See Ammunition.

Casters—
Bed..... \$ 55¢55¢10¢
Shallow..... \$ 60¢60¢10¢
Deep Socket..... 40¢10¢
Yale Casters, list May, 1884..... 50¢10¢40¢
Yale, Gem..... 60¢60¢5¢
Martin's Patent (Phoenix)..... 45¢10¢50¢
Payson's Anti-friction..... 60¢60¢10¢
Giant Truck Casters..... 50¢
Stationary Truck Casters..... 50¢10¢
Socket Truck Casters..... 50¢

Cattle Lenders—See Lenders, Cat-
tle.

Chain—
Trace, Wagon and Fancy Chains,
list revised April 21, 1890..... 50¢
10¢60¢

American Coll. in cask lots,
8-16 1/2 6-10 7-10 1/2 5 1/2 1/2
\$2.50 5.70 4.80 4.30 3.90 3.75 3.65 3.50
Less than cask lots, add 1/4¢ per lb.
German Coll., list of June 20, 1887..... 50¢10¢50¢
German Halter Chain, list of June 20,
1887..... 50¢10¢50¢
Covert Halter..... 50¢2¢
Covert Traces..... 55¢2¢
Covert Heel Chain..... 50¢2¢
Onelda Halter Chain..... 60¢60¢5¢
Galvanized Pump Chain..... \$ 5 54¢5¢
Jack Chain, Iron..... 75¢10¢80¢
Jack Chain, Brass..... 75¢75¢10¢

Chalk—
White..... \$ gr 50¢
Red..... \$ gr 70¢
Blue..... \$ gr 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—
Socket Framing and Firmer.
P. S. & W..... \$ 75 to 75¢10
New Haven..... \$ 75 to 75¢10
Witherby..... \$ 75 to 75¢10
Wix..... \$ 75 to 75¢10
Ohio Tool Co..... \$ 75 to 75¢10
Douglas..... \$ 75 to 75¢10
Buck Bros..... 30¢
Merrill..... 60¢10¢60¢10¢5¢
L. & J. White..... 60¢30¢80¢

Tanged and Miscellaneous.
Tanged Firmers..... 40¢10¢50¢
Butchers'..... \$4.75 to \$5.00
Spear & Jackson's..... \$5 to \$6
Buck Bros..... 30¢
Cold Chisels, \$..... 15¢1 1/2

Chucks—		Cutters—		Screw-Driver Bits, Parr's—		Gem—	
Beach Pat.	each, \$8.00.....30%	Meat.		Fray's Hol. Hdie. Sets. No. 3. \$12.00.	25@25@10%	Blizzard.....	70%
Morse's Adjustable, each, \$7.00, 20@20@5%		Dixon's # doz.....	40@5%	P. D. & Co.'s all Steel.....	25@25@10%	Double Action Crown.....	60%
Danbury, each, \$6.00, 20@20@5%		Nos.....	\$1.00 \$17.00 \$19.00 \$20.00	Cincinnati.....	25@10%	Crown.....	60%
Syracuse, each, \$6.00, 20@20@5%		Woodruff's # doz.....	40@5%	Brace Screw Drivers.....	25@10%	Star.....	60%
Skinner's Patent Chucks.....	33@4%	Nos.....	100 150	Buck Bros.' Screw-Driver Bits.....	25@10%	Peerless and Giant.....	60@10
Combination Lathe Chucks.....	33@4%	Rales Pattern # doz.....	70@70@5%	Egg Beaters.—See Beaters, Egg.		Zero and Pet.....	65@10
Universal Lathe Chucks.....	40%	Nos.....	11 12 13	Egg Poachers.—See Poachers, Egg.		Boss.....	65@10@10
Independent Lathe Chucks.....	40%	American.....	\$27.00 \$39.00 \$45.00	Electric Bell Sets.—See Bells, Electric.		Keystone, P. D. & Co., each, \$1.50.....	20%
Drill Chucks.....	15%	Nos.....	1 2 3 4 5	Emery.—No. 4 to No. 54 to Flour, CP.		Fruit and Jelly Presses.—See Presses, Fruit and Jelly.	
Union Mfg. Co.....	\$8.50, 25%	Each.....	\$5 \$7 \$10 \$25 \$50 \$60	46 gr. 150 gr. F. FF.		Fry Pans.—See Pans, Fry.	
Victor.....	40%	Enterprise.....	22 25 28 35 42	Kegs, # B.....		Funnels.	
Combination.....	40%	Each.....	\$3 \$2.50 \$4 \$5 \$11	1/4 Kgs, # B.....		Gersdorff's Perfection, Standard and	
Universal.....	40%	Great American Meat Cutter.....	30%	1/2 Kgs, # B.....		Globe; 7 1/2, 1 gro, 10 1/2; 2 to 5 gro,	
Independent.....	40%	Nos.....	112 116 118 120 122	10-lb cans, 10		20 1/2; 5 to 10 gro.....	
Churns.		Each.....	\$2.00 \$2.75 \$3.00 \$2.50 \$4.00	10-lb cans, less		Copper, 1 to 6 doz, 15 1/2; 6 to 12	
Timin Union No. 1, 5 gallon.....	\$3.25 each	Miles' Challenge # doz.....	45@45@10%	than 10-lb.....		doz, 20 1/2; over 12 doz.....	
Timin Union No. 2, 7 gallon.....	\$3.75 each	Nos.....	2 3 4	Enameled and Tinned Ware.—		See Ware, Hollow.	
Timin Union No. 3, 10 gallon.....	\$4.25 each	Home No. 1.....	\$22.00 \$30.00 \$40.00	Escutcheon Pins.—See Pins, Es-		cutcheon.	
Clamps—		Draw Cut, each.....	\$50 \$75 \$80 \$225.....20@25%	Escutcheons.		Door Lock.....	
R. I. Tool Co.'s Wrought Iron.....	25%	Nos.....	5 6 8	Door Lock.....		Same dis as Door Locks.	
Adjustable, Cincinnati.....	15@10%	Great American.....	20@25%	Brass Thread.....		60@60@10%	
Adjustable, Hammers.....	15%	Beef Shavers (Enterprise).....	20@10@80%	Wood.....		25%	
Adjustable, Stearns.....	30@30@10%	Little Giant.....	30%	Expanded Metal.		List No. 5.	
Stearns' Adjustable Cabinet and Cor-	30@30@10%	Wilson's.....	55%	Lathing.....		10%	
ner.....	30@30@10%	Sargents.....	\$24, 55@10%, 40%	Fencing, Painted Sheets.....		20%	
Cabinet, Sargent's.....	70@10%	Acme.....	\$20, 40%	Painted Sheets.....		20%	
Carriage Makers, Sargent's.....	70@10%	Washer.....	\$12.00, 20@10@10%	Door Mats, Galvanized.....		15%	
Carriage Makers, P. S. & W. Co.....	40@10%	Smith's Pat. # doz.....	\$12.00, 20@10@10%	Window Guards, Paneled.....		15%	
Eschbach Mfg. Co.....	40@10%	Johnson's.....	\$11.00, 33@4%	Tree Guards, Paneled.....		15%	
Warner's.....	40@10%	Penney's.....	\$14, Jap'd, \$16.00, 55%	Fasteners, Blind—		Mackrell's, # doz, \$1.00.....	
Saw Clamps, see Vices, Saw Filers.....	35@10%	Appleton's.....	\$16.00, 60@10%	Van Sand's Screw Pat., \$15 gr.....		60@10%	
Carpenters', Cincinnati.....	35@10%	Bonney's.....	\$16.00, 60@10%	Van Sand's Old Pat., \$15.00 gr.....		60@10%	
Cleavers.		Cincinnati.....	25@10%	Washburn's Old Pattern, gr.....		60.00	
Butchers'.		Tobacco.		Merriman's.....		How list	
Bradley's.....	25@30%	Champion.....	20@10@30%	Austin & Eddy No. 2008 gr.....		\$9.00	
E. L. J. White.....	20@25%	Wood Bottom.....	\$5.00, 60@5.25%	Security Gravity, gr.....		\$9.00	
Beatty's.....	40@40@25%	All Iron.....	\$4.25	Faucets.—		Fenn's.....	
New Haven Edge Tool Co.....	40%	Sash Lock Co.'s.....	\$18.00, 50@55%	Bohren's Pat. Rubber Ball.....		40%	
P. S. & W.....	40%	Wilson's.....	55%	Fenn's Cork Stops.....		33@4%	
Foster Bros.....	30%	Sargents.....	\$24, 55@10%, 40%	Star.....		60%	
Schulte, Lohoff & Co.....	40@40@25%	Acme.....	\$20, 40%	Fraser's Pat. Petroleum.....		40@25%	
Clips—		Washer.....	\$12.00, 20@10@10%	B. & L. Co.		West's Lock, Open and Shut Key.....	
Norway, Axle, 1/2 & 5-16.....	55@25%	Smith's Pat. # doz.....	\$12.00, 20@10@10%	Star, Metal Plug, new list.....		40%	
2nd grade Norway Axle, 1/2 & 5-16.....	65@25%	Johnson's.....	\$11.00, 33@4%	Lockport, Metal Plug, reduced list.....		40%	
Superior Axle Clips.....	60@25@70%	Penney's.....	\$14, Jap'd, \$16.00, 55%	Metallic Key, Leather Lined.....		60@10%	
Norway Spring Bar Clips, 5-16.....	70@25%	Appleton's.....	\$16.00, 60@10%	Cork Lined.....		70@5@70@10%	
Wrought-Iron Felloe Clips.....	\$5, 5@4%	Bonney's.....	\$16.00, 60@10%	Burnside's Red Cedar.....		50%	
Steel Felloe Clips.....	\$5, 5@4%	Cincinnati.....	25@10%	Burnside's Red Cedar, bbl list.....		50@10%	
Saker Axle Clips.....	\$5, 5@4%	Cutlery—		John Sommers'.....		Peerless Best Block Tin Key.....	
Cloth and Netting, Wire—See Wire, &c.		Beaver Falls & Booth's.....	33%	IXL, 1st quality, Cork Lined.....		50%	
Cockeyes.....		Wostenholme.....	\$7.75 to \$8	Diamond Lock.....		40%	
Cocks, Brass.....		Dampers, &c—		Perfection, Fla. Red Cedar.....		50%	
Hardware list.....		Dampers, Buffalo.....	40@10%	Goodenough Cedar.....		50%	
Coffee Mills—See Mills, Coffee.		Buffalo Damper Clips.....	40@10%	Boss Metallic Key.....		50%	
Collars, Dog, &c.		Crown Damper.....	40%	Reliable Cork Lined.....		60%	
Medford Fancy Goods Co.....		Excelsior.....	40@10%	Western Pattern Cork Lined.....		50%	
Embossed, Gilt, Pope & Steven's list.....		Diggers, Post Hole, &c.—		Self-Measuring.....		20@10%	
Leather, Pope & Steven's list.....		Samson Post Hole Digger, # doz.....	\$36.00, 25%	Enterprise, # doz.....		\$50.00, 20@10%	
Brass, Pope & Steven's list.....		Fletcher Post Hole Augers, # doz.....	\$36, 25%	Lane's, # doz.....		\$36.00, 25@10%	
Chapman Mfg. Company.....		Eureka Diggers.....	\$16.00@17.00	Victor, # doz.....		\$36.00, 25@10%	
Combs, Curry.		Lead's.....	\$8.00@9.00	Felloe Plates—See Plates, Felloe.		Fifth Wheels.—	
Fitch's.....		Vaughan's Post Hole Auger, # doz.....	\$13.00@14.00	Derby and Cincinnati.....		45@25%	
Rubber, per doz.....		Kohler's Little Giant.....	\$18.00	Brewster.....		50@25%	
Perfet.....		Kohler's Hercules.....	\$15.00	Files—		Domestic.....	
Compasses, Dividers, &c.—		Kohler's New Champion.....	\$9.00	Nicholson Files, Rasps, &c.....		60@10@60@10@25%	
Compasses, Callipers, Dividers.....		Schmierer.....	\$18.00	Nicholson (X. F.) Files.....		25%	
Bemis & Call Co.'s.....		Ryan's Post Hole Digger, # doz.....	\$24.00	Nicholson's Royal Files (Seconds).....		75%	
Dividers.....		Cronk's Post Bars, # doz.....	\$60.00, 50@50@10%	(extra prices on certain sizes)		60@20%	
Compasses & Callipers.....		Gibbs Post Hole Digger, # doz.....	\$30.00, 50%	Fair brands.....		60@10@10@70@25%	
Wing and Inside or Outside.....		Imperial, # doz.....	\$15, 45%	Second quality.....		70@10@75@10%	
Double.....		Dividers—		Nicholson's Horse Rasps.....		60@10@60@25%	
Call's Pat. Inside.....		See Compasses.....		Heller's Horse Rasps.....		50@75@50@10%	
Excelsior.....		Dog Collars—See Collars, Dog, &c.		McCaffrey's Horse Rasps.....		50@10%	
J. Stevens & Co.'s.....		Door Springs—See Springs, Door.		Chelsea Horse Rasps, Hand Cut.....		50@10%	
Starrett's.....		Drawers.....		Imported.....		Moss & Gamble.....	
Spring Callipers and Dividers.....		Money, # doz.....	\$18@20	Moore's List, April 1, 1883, 15%		Butcher.....	
Lock Callipers and Dividers.....		Drawing Knives—See Knives, Drawing.		Butcher's list, 20%		Stubs.....	
Combination Dividers.....		Drills and Drill Stocks—		Turton's list, 20@25%		Graeves' Horse Rasps, American list, 60%	
Coopers' Tools—See Tools, Coopers'.		Blacksmiths'.....	each \$1.75	Fixtures.		Halters.	
Cord, Sash—		Blacksmiths' Self-Feeding, each.....	\$7.50, 20%	Grindstone—		Covert's, Rope, 1/2-in. Jute.....	
Common.....		Breast, P. S. & W.....	40@10%	Sargent's Patent.....		50@25%	
White Cotton Braided, fair.....		Breast, Wilson's.....	30@5%	Reading Hardware Co.....		50@25%	
Common Russia Sash.....		Breast, Millers Falls.....	\$3.00, 25%	P. S. & W. Co.....		50@10%	
Patent.....		Breast, Bartholomew's.....	each \$2.50, 25@10@40%	Fluting Machines—See Machines, Fluting.		Fluting Scissors—See Scissors, Fluting.	
Cable Laid Italian Sash.....		Ratchet, Merrill's.....	20@20@5%	Fodder Squeezers—See Squeezers, Fodder.		Forks—	
Indian Cable Laid.....		Ratchet, Ingersoll's.....	20@20@5%	Hay, Manure, &c., Ass'd List.....		70%	
Silver Lake.....		Ratchet, Parker's.....	20@20@5%	Hay, Manure, &c., Phila. List.....		60@60@5%	
A Quality, White, 50f.....		Ratchet, Whitney's.....	20@10%	Plated, see Spoons.		Frames—	
B Quality, White, 50f.....		Ratchet, Weston's.....	20@25%	Sat—		White Vermont.....	
C Quality, Drab, 50f.....		Ratchet, Moore's Triple Action.....	25@30%	Screen, Window and Door—		Porter's Pat. Window and Door Frame.....	
C Quality, White (only).....		Ratchet, Curtis & Curtis.....	30%	Warner's Screen Corner Irons.....		33@10%	
Sylvan Spring, Extra Braided, White, 34f.....		Whitney's Hand Drill, Plain, \$11.00, adjustable, \$12.00.....	20@10%	Stearns' Frames and Corners.....		25@25@10%	
Sylvan Spring, Extra Braided, Drab, 34f.....		Wilson's Drill Stocks.....	\$1.75@1.5%	Freezers, Ice Cream—		White Mountain.....	
Semper Idem, Braided, White.....		Automatic Boring Tools.....	\$1.75@1.5%	Granite State.....		60@60@5%	
Egyptian, India Hemp, Braided.....		Morse.....	50@10@25%	Arctic.....		70@70@5%	
Braided, White Cotton, 50f.....		Standard.....	50@10@25%	Buffalo Champion.....		65@65@5%	
Braided, Drab Cotton, 55f.....		Syracuse (Metal list).....	50@10@25%	Shepard's Lightning.....		65@65@5%	
Braided, Italian Hemp, 55f.....		Cleveland.....	50@10@25%				
Braided, Linen, 50f.....		Williams.....	50@10@25%				
		New Process.....	50@10@25%				
		Drill Bits.—See Augers and Bits.					
		Drill Chucks.—See Chucks.					
		Dripping Pans—See Pans, Dripping.					
		Drivers, Screw.					
		Douglas Mfg. Co.....	20@20@10%				
		Dixton's.....	60%				
		Buck Bros.....	30%				
		Stanley R. & L. Co.'s	65@10%				
		Varied Handles.....	60@10%				
		Black Handles.....	60@10%				
		Sargent & Co's	No. 1 Forged Blade.....60@10@10%				
		No. 20, 30 and 60.....	60@10@10%				
		P. S. & W.....	70%				
		Knapp & Cowles No.1.....	60@20@70%				
		No. 1 Extra.....	60@20@10%				
		No. 00 & 4.....	50@20@10@5%				
		Stearns.....	25@10@5%				
		Gay & Parsons.....	35%				
		Champion.....	25@10%				
		Clark's Pat.....	30@33@5%				
		Crawford's Adjustable.....	60%				
		Ellrich's Socket and Ratchet.....	25@25@5%				
		Allard's Spiral, new list.....	25%				
		Kolb's Common Sense # doz.....	\$6.00, 25@10%				
		Syracuse Screw-Driver Bits.....	30@30@5%				
		Screw-Driver Bits.....	# doz, 50@75%				

Roggin's Latches..... 50¢ doz 30¢ doz 35¢
 Bronze Iron Drop Latches..... 70¢ doz net
 Jap'd Store Door Handles—Nuts, \$1.62;
 Plate, \$1.10; no Plate, \$0.88..... net
 Barn Door, 50¢ doz \$1.40..... 10¢ doz
 Chest and Lifting..... 70¢

Wood—

Saw and Plane..... 40¢ doz 10¢ doz 10¢ doz
 Hammer, Hatchet, Axe, Sledge, &c., 40¢
 Brad Axl..... gr 2 50¢
 Hickory Firmer Chisel, ass'd..... gr 4.50
 Hickory Firmer Chisel, large..... gr 5.00
 Apple Firmer Chisel, ass'd..... gr 5.00
 Apple Firmer Chisel, large..... gr 5.00
 Socket Firmer Chisel, ass'd..... gr 5.00
 Socket Framing Chisel, ass'd..... gr 5.00
 J. S. Smith & Co.'s Pat File..... 50¢
 File, assorted..... gr 2 75¢ 40¢
 Auger, assorted..... gr 2 50¢ 40¢
 Auger, large..... gr 7 00¢ 40¢
 Pat. Auger, Ives..... 30¢ doz
 Pat. Auger, Douglas..... set \$1.25
 Pat. Auger, Swan's..... set \$1.00
 Hoe, Bake, Shovel, &c..... 50¢ doz

Hangers—

Barn Door, old patterns..... 60¢ doz 10¢ doz 70¢
 Barn Door, new patterns..... 30¢ doz 10¢ doz 70¢
 Samson Steel Anti-Friction..... 55¢
 Orleans Steel..... 55¢
 Hamilton Wrought Wood Track..... 55¢
 U. S. Wood Track..... 55¢
 Champion..... 60¢ doz
 Rider and Wooster, Medina Mfg. Co.'s..... 70¢
 Climax Anti-Friction..... 60¢
 Climax Anti-Friction for Wood Track..... 55¢
 Zenith for Wood Track..... 55¢
 Reed's Steel Arm..... 50¢
 Challenge, Barn Door..... 50¢
 Sterling's Improved Anti-Friction..... 50¢ doz
 Victor, No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00..... 50¢ doz
 Cheritree..... 50¢ doz
 Kidder's..... 50¢ doz
 The Boss..... 60¢ doz
 Best Anti-Friction..... 60¢ doz
 Duplex (Wood Track)..... 60¢ doz
 Terry's Pat., 50¢ doz pr. 4 in., \$10.00; 5 in., \$12.00..... 50¢ doz
 Terry's Steel Anti-Friction Leader..... 50¢ doz
 Terry's Steel Anti-Friction Ideal..... 50¢ doz
 Cronk's Patent, Steel Covered..... 50¢ doz
 Wood Track Iron Clad, 5 ft. 10¢..... 50¢

Carrier Steel Anti-Friction..... 50¢ doz
 Architect, 50¢ doz
 Kelpie..... 20¢ doz
 Felix, 50¢ doz
 Richards..... 30¢ doz
 Lane's Standard..... 50¢ doz
 Lane's New Standard..... 50¢ doz
 Ball Bearing Door Hanger..... 20¢ doz
 Warner's Pat..... 20¢ doz
 Stearns' Anti-Friction..... 20¢ doz
 Stearns' Challenge..... 25¢ doz
 Pauline..... 40¢ doz
 American, 50¢ doz
 Rider & Wooster, No. 1, 2, 3, 4, 5, 6, 7, 8..... 20¢ doz
 Paragon, Nos. 1, 2 and 3..... 40¢ doz
 Cincinnati..... 25¢ doz
 Paragon, Nos. 5, 6, 7 and 8..... 20¢ doz
 Crescent..... 60¢ doz
 Nickel Cast Iron..... 50¢
 Nickel, Malleable Iron and Steel..... 40¢
 Scranton Anti-Friction Single Strap..... 40¢
 Wild West, 4 in. Wheel, \$15.00; 5 in. Wheel, \$21.00..... 45¢
 Star..... 40¢ doz
 May..... 50¢ doz
 Barry, 50¢ doz

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
 Blood's..... 40 & 10
 Hunt's..... 50 & 5
 Hurl's..... 50 & 5
 Mann's..... 40 & 10
 Peck's..... 40 & 10
 Underhill's..... 40 & 10
 Buffalo Hammer Co..... 50 & 5
 Fayette R. Plumb..... 50 & 5
 C. Hammond & Son..... 50 & 5
 Kelly's..... 50 & 5
 Sargent & Co..... 50 & 5
 P. S. & W. Co..... 50 & 5
 Ten Eyck Edge Tool Co..... 50 & 5
 Collins..... 50 & 5
 Schulte, Lohoff & Co..... 50 & 5

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker..... 75¢ doz
 Palmer..... 50¢ doz
 Seymour..... 70¢ doz
 Nicholson..... 45¢ doz
 Huffer..... 50¢
 Clark's, Nos. 1, 3, 5, 40 and 50..... 75¢ doz
 Sargent's, Nos. 1, 3, 5, 11, 13..... 50¢ doz
 Sargent's, No. 12..... 75¢ doz
 Reading's Gravity..... 75¢ doz
 Shepard's..... 75¢ doz
 Noiseless..... 75¢ doz
 Niagara..... 80¢ doz
 Buffalo..... 80¢ doz
 Clark's Genuine Pattern..... 80¢ doz
 O. S. Lull & Porter..... 75¢ doz
 Acme, Lull & Porter..... 75¢ doz
 Queen City Reversible..... 70¢ doz
 Clark's Lull & Porter, Nos. 0, 1, 1 1/2, 2, 2 1/2, 3..... 75¢ doz
 North's Automatic Blind Hinges, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50..... 10¢

Gate Hinges—

Western..... 50¢ doz
 N. E. Reversible..... 50¢ doz
 Clark's, Nos. 1, 2, 3..... 50¢ doz
 Y. State..... 50¢ doz
 Automatic..... 50¢ doz
 Common Sense..... 50¢ doz
 Seymour's..... 50¢ doz
 Shepard's..... 50¢ doz
 Reed's Latch and Hinges..... 50¢ doz

Spring Hinges—

Geer's Spring and Blank Butts..... 40¢
 Union Spring Hinge Co.'s list, March, 1888..... 20¢

Acme..... 30¢
 J. S..... 30¢
 Empire and Crown..... 20¢
 Hero and Monarch..... 55¢
 American, Gem, and Star..... 20¢
 Oxford..... 20¢
 Barker's Double Acting..... 25¢
 Union Mfg. Co..... 25¢
 Bommer..... 25¢
 Suckman's..... 15¢ doz
 Chicago..... 30¢
 Wiles..... 10¢
 Devore's..... 40¢
 Rex..... 40¢
 Royal..... 60¢
 Reliable..... 60¢
 Champion..... 60¢
 Bardsley's Patent..... 40¢
 Stearn's..... 50¢ doz

Wrought Iron Hinges

Strap and T..... 75¢ doz
 Screw Hook and..... 10 to 12 in., 50¢ doz
 Strap..... 14 to 20 in., 50¢ doz
 Heavy Welded..... 10 to 12 in., 50¢ doz
 Hook..... 14 to 20 in., 50¢ doz
 Screw Hook..... 14 to 20 in., 50¢ doz
 and Eye..... 14 in., 50¢ doz
 Rolled Blind Hinges, Nos. 33 and 34..... 50¢ doz
 Rolled Blind Hinges, Nos. 232 and 234..... 50¢ doz
 Rolled Plate..... 50¢ doz
 Rolled Raised..... 70¢ doz
 Plate Hinges 8, 10 & 12 in., 50¢ doz
 "Providence" over 12 in., 50¢ doz

Hoes—

Eye..... 20¢
 D. & H. Scovill..... 20¢
 Lane's Crescent Planters Pattern..... 45¢ doz
 Lane's Razor Blade, Scovill Pattern..... 30¢
 Maynard, S. & O. Pat..... 45¢ doz
 Sandusky Tool Co., S. & O. Pat..... 60¢ doz
 Hubbard & Co., S. & O. Pat..... 60¢ doz
 Chattanooga Tool Co., S. & O. Pat..... 60¢ doz
 Grub..... 60¢ doz

Handled—

Garden, Mortar, &c..... 70¢
 Planter's, Cotton, &c..... 70¢
 Warren Hoe..... 70¢
 Magic..... 50¢ doz

Hog Rings and Rings—See Rings and Ringers.

Holding Apparatus—See Machines, Holding.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag..... 50¢ doz
 Sprengle's Pat..... 50¢ doz
 Bit..... 20¢
 Extension..... 20¢
 Barber's, 50¢ doz
 Ives, 50¢ doz
 Paragon, Nos. 1, 2 and 3..... 40¢ doz
 Cincinnati..... 25¢ doz
 Paragon, Nos. 5, 6, 7 and 8..... 20¢ doz
 Crescent..... 60¢ doz
 Nickel Cast Iron..... 50¢
 Nickel, Malleable Iron and Steel..... 40¢
 Scranton Anti-Friction Single Strap..... 40¢
 Wild West, 4 in. Wheel, \$15.00; 5 in. Wheel, \$21.00..... 45¢
 Star..... 40¢ doz
 May..... 50¢ doz
 Barry, 50¢ doz

Hooks—

Cast Iron—
 Bird Cage, Sargent's list..... 60¢ doz
 Bird Cage, Reading..... 60¢ doz
 Clothes Line, Sargent's list..... 60¢ doz
 Clothes Line, Reading..... 60¢ doz
 Ceiling, Sargent's list..... 60¢ doz
 Harness, Reading list..... 55¢ doz
 Coat and Hat, Sargent's list..... 55¢ doz
 Coat and Hat, Reading..... 50¢ doz
 Cotton..... 50¢ doz
 Cotton Pat. (N.Y. Mallet & Handle Wks.)..... 30¢
 Tassel and Picture (T. & S. Mfg. Co.)..... 50¢
 Wrought Staples, Hooks, &c..... See Wrought Staples.

Wire—

Wire Coat and Hat, Gem, list April, 1886..... 50¢
 Wire Coat and Hat, Miles, list April, 1886..... 50¢
 Indestructible Coat and Hat..... 45¢
 Wire Coat and Hat, Standard..... 45¢
 Handy Hat and Coat..... 50¢ doz
 Steady Ceiling Hooks..... 50¢ doz
 Belt..... 80¢ doz
 Atlas..... 60¢

Miscellaneous.

Grass, No. 2, \$2.00; No. 3, \$2.25; No. 4, \$2.50
 Noll's Grass..... 50¢ doz
 Bush..... 50¢ doz
 Whitmore's Patent..... 55¢
 Hooks and Eyes—Malleable Iron..... 70¢ doz
 Hooks and Eyes—Brass..... 80¢ doz
 Fish Hooks, American..... 50¢
 Bench Hooks..... See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition..... 75¢ doz
 Standard..... 60¢ doz
 Extra..... 50¢ doz
 N. Y. B. & P. Co., Extra..... 40¢ doz
 N. Y. B. & P. Co., Dundee..... 50¢ doz

Huskers—

Blair's Adjustable..... 50¢ gr 50¢
 Blair's Adjustable Clipper..... 50¢ gr 70¢
 Hubbard's Solid Steel..... 50¢ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber—

Irons.

Sad—
 From 4 to 10, at factory..... 100 lb.
 Self-Heating..... 50¢ doz
 Self-Heating, Tailors..... 50¢ doz
 Mrs. Pott's Irons..... 40¢ doz
 Enterprise Star Irons..... 40¢ doz
 Cold Handle Sad Irons..... 40¢ doz

Ideal Irons new list..... 50¢ doz
 Salamander, Irons..... 25¢
 B. B. Sad Irons..... 30¢ doz
 Combined Fluter and Sad Iron, 50¢ doz
 15¢ doz
 Fox Reversible, Self-Fluter 50¢ doz
 Chinese Laundry (N.E. Butt Co.) 85¢ doz
 New Iron..... 15¢
 Mahony's Troy Pol. Iron..... 25¢
 Sensible..... 30¢ doz
 National Self-Heating..... 30¢

Soldering—

Soldering Coppers..... 25¢ doz
 Cover's Adjustable, list Jan. 1, 1886..... 35¢ doz

Irons, Pinking, per doz., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy..... 25¢

Kettles—

Spun, Stamped.
 Brass, 7 to 17 in., 24¢ doz
 Brass larger than 17 in., 24¢ doz
 Enameled and Tea—See Hollow-Ware.

Keys—

Lock Ass'n list Dec. 30, 1889..... 50¢ doz
 Eagle, Cabinet, &c..... 35¢ doz
 Hotchkiss, Copper and Tinned..... 40¢
 Hotchkiss, Pad. and Cab..... 35¢
 Ratchet Bed Keys..... 50¢ doz
 Wollensak Tinned..... 50¢ doz

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—
 Wilson's Butcher Knives..... 25¢ doz
 Ames' Butcher Knives..... 25¢ doz
 Foster Bros' Butcher, &c..... 40¢
 Nichols' Butcher Knives..... 40¢ doz
 Ames' Shoe Knives..... 30¢ doz
 Ames' Bread Knives..... 15¢ doz
 Moran's Shoe and Bread..... 20¢
 Hay and Straw..... See Hay Knives.
 Table and Pocket..... See Cutlery.
 Corn, Auburn Mfg. Co. Crescent..... \$3.50

Corm—

Bradley's..... 10¢
 Wadsworth's..... 25¢

Draughting—

Witherby..... 75¢ doz
 P. S. & W..... 75¢ doz
 Mix..... 75¢ doz
 New Haven..... 60¢ doz
 Merrill..... 60¢ doz
 Douglas..... 75¢ doz
 Watrous..... 15¢ doz
 L. & J. White..... 30¢ doz
 Bradley..... 35¢
 Adjustable Handle..... 25¢ doz
 Wilkinson's Folding..... 25¢ doz

Hay and Straw—

Lightning, Mfrs. price 50¢ doz \$18.00, 25¢
 But jobbers cut this price freely,
 often selling at \$8 @ \$8.50.
 Wadsworth's..... 40¢ doz
 Carter's Needle..... 50¢ doz
 Heath's..... 50¢ doz
 Auburn Hay, Corn, and Spear Point..... 40¢
 Auburn, Straw..... 40¢
 Noll's Hay..... 50¢ doz

Mining.

Am. (2d quality), 50¢ gr., 1 blade, \$7;
 2 blades, \$12; 3 blades, \$18..... net
 Lotthrop's..... 20¢ doz
 Smith's, 50¢ doz, Single, \$2.00; Double, \$3
 Knapp & Cowles..... 40¢ doz
 Buffalo Adjustable..... 50¢ doz
 Buffalo Double Adj'table, 50¢ doz

Knobs—

Door Mineral..... 60¢ doz
 Door Por. Jap'd..... 70¢ doz
 Door Por. Nickel..... 20¢ doz
 Door Por. Plated, Nickel..... 20¢ doz
 Drawer, Porcelain..... 60¢ doz
 Henacite Door Knobs..... 40¢ doz
 Yale & Towne Wood, list Dec. 1885..... 40¢
 Furniture, Plain..... 75¢ doz
 Furniture, Wood Screws..... 30¢ doz
 Base, Rubber Tip..... 70¢ doz
 Picture, Judd's..... 60¢ doz
 Picture, Henacite..... 70¢ doz
 Shutter, Porcelain..... 50¢ doz
 Carriage, Jap..... 50¢ doz
 Bardsley's Wood Door, Shutter, &c..... 40¢

Ladies—

Melting, Sargent's..... 55¢ doz
 Melting, Reading..... 55¢ doz
 Melting, Monroe's Pat..... 50¢ doz
 Melting, P. S. & W..... 35¢ doz
 Melting, Warner's..... 30¢

Lanterns—

Tubular—
 Plain with Guards, 50¢ doz..... \$4.00 @ 4.25
 Lift Wire, with Guards..... \$4.50 @ 4.75
 Square Plain, with Guards..... \$4.00 @ 4.25
 Sq. Lift Wire, with Guards..... \$4.25 @ 4.50
 Without Guards, 25¢ doz less.

Miscellaneous.

Police, Small, \$6.00; Medium, \$7.25;
 Large, \$9.75..... 20¢ doz

Lawn Mowers—See Mowers, Lawn.

Lenders, Cattle.

Humason, Beckley & Co.'s..... 70¢
 Hotchkiss..... 30¢
 Peck, Stow & W. Co..... 60¢ doz

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
 Class 3 and 4, Bronzed Iron..... 50¢
 Class 3 and 4, Bronze Metal..... 25¢
 Class 3 and 4, Brass..... 35¢
 Skylight Lifters..... 35¢
 Crown, Eagle and Shield..... 50¢
 Reiter's, list Aug. 1, 1889..... 50¢ doz
 Bronzed Iron Rods..... 50¢ doz
 Brass, Real Bronze or Nickel Plate..... 30¢

Excelsior..... 50¢ doz
 Shaw's..... 50¢ doz
 Payson's Universal..... 40¢ doz

Lines—

Cotton and Linen Flah, Draper's..... 50¢
 Draper's Chalk..... 50¢
 Draper's Mason's Linen, 24 ft., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25..... 50¢
 Cotton Chalk..... 50¢
 Samson, Cotton, No. 4, \$2; No. 4 1/2, \$2.50..... 50¢

Silver Lake, Braided, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50..... 50¢

Mason's Linen, No. 3 1/2, \$1.50; No. 4, \$2.00; No. 4 1/2, \$2.50..... 50¢

Mason's Colored Cotton..... 50¢

Wire Clothes..... 50¢

100 ft. \$4.00 \$3.50 \$3.00

Ventilator Cord, Samson Braided, White or Drab Cotton..... 50¢ doz

Locks, &c.—

Cabinet—

Eagle, Gaylord Par..... list March, '84, rev
 ker and Corbin..... Jan. 1, '85, 30¢ doz
 Deits, Nos. 30 to 39..... 40¢
 Deits, Nos. 51 to 63..... 40¢ doz
 Deits, Nos. 81 to 93..... 40¢ doz
 Stoddard Lock Co..... 30¢
 "Champion" Night Latches..... 30¢ doz
 Barnes Mfg. Co..... 40¢ doz
 Eagle and Corbin Trunk..... 25¢ doz
 "Champion" Cab. and Combin..... 35¢ doz
 Yale..... net price
 Romer's..... 30¢

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 30, 1889..... 60¢ doz
 Mallory, Wheeler & Co., list July, '88..... lower net
 Sargent & Co., list Aug. 1, '88..... prices
 Reading Hardware Co., list Feb. 2, '88..... often
 Brittan, Graham & Mathes, list Jan. 1890..... made
 Perkins' Burglar Proof..... 60¢ doz
 Plate..... 35¢ doz
 Barnes Mfg. Co..... 40¢ doz
 Yale..... net price
 Deits Flat Key Latches..... 30¢ doz
 L. & C. Round Key Latches..... 35¢ doz
 L. & C. Flat Key Latches..... 35¢ doz
 Romer's Night Latches..... 15¢
 Shephardson or U. S..... 20¢
 Seed's N. Y. Hesp Lock..... 35¢

Fudlocks.

List Dec. 23, '84..... 75¢ doz
 Brittan, Graham & Mathes..... 75¢ doz
 Yale Lock Mfg. Co.'s..... net price
 Eagle..... 25¢ doz
 Eureka, Eagle Lock Co..... 40¢ doz
 Romer's, Nos. 0 to 91..... 30¢
 Romer's Scandinavian, &c., Nos. 100 to 150..... 30¢
 A. E. Deits..... 40¢
 Champion Padlocks..... 40¢
 Hotchkiss..... 30¢
 Star..... 45¢
 Horseshoe..... 50¢ doz
 Barnes Mfg. Co..... 40¢ doz
 Nock's..... 40¢ doz
 Brown's Pat..... 25¢
 Scandinavian..... 60¢ doz
 E. T. Fraim's Keystone Scandinavian: Nos. 119, 120, 130 and 140..... 50¢ doz
 Other Nos..... 60¢
 Ames Sword Co., up to No. 150..... 40¢
 Ames Sword Co. above No. 150..... 50¢
 Slaymaker Barry & Co..... 45¢ doz
 No. 41 line..... 45¢ doz
 No. 31 line..... 60¢ doz
 No. 21 line..... 75¢ doz

Sash, &c.

Clark's, No. 1, \$10; No. 2, \$8 gr..... 35¢ doz
 Ferguson's..... 35¢ doz
 Morris and Triumph, list Aug. 16, 1886..... 60¢ doz
 Victor..... 60¢ doz
 Walker..... 10¢
 Attwell Mfg. Co..... 25¢ doz
 Reading..... 60¢ doz
 Hammond's Window Springs..... 40¢
 Common Sense, Jap'd, Cop'd and Brisd..... gr \$4.00
 Common Sense, Nickel Plate..... gr \$10.00

Universal.

Kempshall's Gravity..... 30¢
 Kempshall's Model..... 60¢ doz
 Corbin's Daisy, list Feb. 15, 1888..... 70¢
 Payson's Perfect..... 60¢ doz
 Hugunin's Sash Balances..... 25¢ doz
 Hugunin's New Sash Locks..... 25¢ doz
 Stoddard "Practical"..... 10¢
 Ives' Patent..... 60¢ doz
 Liesche's, Nos. 100 and 110, gr \$3; 105, \$10.00..... 20¢ doz
 Davis, Bronze, Barnes Mfg. Co..... 50¢
 Champion Safety, list March 1, 1888..... 60¢ doz

Security.

Security..... 70¢
 Buckeye..... gr \$4.50

Lumber Tools—See Tools, Lumber

Lustro—

Four-ounce Bottles..... 50¢ doz, \$1.75; gr gross..... \$17.00

Machines.

Boring—

Without Upright, Angular.
 Douglas..... \$5.50 \$6.75..... 50¢
 Snell's, Kice's Pat. 5.50 6.75..... 40¢ doz
 Jennings..... 5.50 6.75..... 45¢ doz
 Other Machines..... 2.35 2.75..... 50¢
 Phillips' Patent with Angers..... 7.00 7.50..... 50¢
 Knox, 4 1/2-inch Rolls..... \$3.25 each } 35¢
 Eagle, 3 1/2-inch Rolls..... \$3.00 each } 35¢
 Eagle, 3 1/2-inch Roll, \$3.15..... 35¢
 Eagle, 5 1/2-inch Roll, \$3.25..... 35¢
 Crown, 4 in., \$3.50; 6 in., \$4.00; 8 in., \$5.00 each..... 35¢
 Crown Jewel, 6 in..... \$3.50 each..... 35¢
 American, 5 in., \$5.00; 6 in., \$5.40; 7 in., \$4.50 each..... 35¢
 Domestic Fluter..... each, \$1.50
 Geneva Hand Fluter, White Metal..... do \$12, 25¢
 Crown Hand Fluter, Nos. 1, \$15.00; 12.50; 3, \$10.00..... 30¢
 Shepard Hand Fluter, No. 85..... 50¢
 \$15.50..... 40¢

Shepard Hand Fluter, No. 110 # dos 40¢
\$11.00. 40¢
Shepard Hand Fluter, No. 95 # dos 40¢
\$8.00. 40¢
Clark's Hand Fluter, # dos \$15.00. 35¢
Combined Fluter and Saw Iron. 30¢
dos \$10.00. 10¢
Buffalo. 10¢

Hoisting.
Moore's Hand Hoist, with Lock 20¢
Brake. 40¢
Moore's Differential Pulley Block. 40¢
Energy Mfg. Co.'s. 25¢

Nails.
Hickory. 20¢10¢20¢10¢10¢
Lignumvite. 20¢10¢20¢10¢10¢
B. & L. Block Co., Hickory & L. V. 30¢30¢10¢
Mattocks, Regular list. 60¢10¢

Measures.
Standard Fiberware, No. 1, peck, # dozen, \$4; 1/4 peck, \$3.50.

Meat Cutters.—See Cutters, Meat.

Mills.

Coffee.
Box and Side, List Jan. 1, 1888. 60¢25¢
Enterprise Mfg. Co. 30¢10¢30¢
The Swift, Lane Bros. 20¢10¢

Mining Knives.—See Knives, Mining.

Molasses Gates.—See Gates, Molasses.

Money Drawers.—See Drawers, Money.

Mowers, Lawn.

Leading makers. 60¢60¢10¢25¢
Other makers. 60¢10¢5¢60¢10¢10¢
Pennsylvania. 60¢
Continental. 60¢
New Model. 60¢10¢25¢
New Quaker City. 60¢10¢25¢
Great American. 60¢10¢25¢

Muzzles.

Safety. # dos \$3.00, 25¢

Nails.

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, July 15, '89. 75¢75¢55¢
Tack Mfrs. list. 60¢10¢10¢
Wire Nails, Standard Penny.
Card June 1, '89, base. \$2.50 @ \$2.00

Horse.

Nos. 6 7 8 9 10

Ansable. 25¢ 25¢ 25¢ 25¢ 25¢

Clinton, Pin. 10¢ @ 11¢, net

Essex. 25¢ 25¢ 25¢ 25¢ 25¢

Lyra. 25¢ 25¢ 25¢ 25¢ 25¢

Snowden. 25¢ 25¢ 25¢ 25¢ 25¢

Putnam. 25¢ 25¢ 25¢ 25¢ 25¢

Vulcan. 25¢ 25¢ 25¢ 25¢ 25¢

Northwest. 25¢ 25¢ 25¢ 25¢ 25¢

Globe. 25¢ 25¢ 25¢ 25¢ 25¢

Boston. 25¢ 25¢ 25¢ 25¢ 25¢

A. C. 25¢ 25¢ 25¢ 25¢ 25¢

C. B. K. 25¢ 25¢ 25¢ 25¢ 25¢

Champlain. 25¢ 25¢ 25¢ 25¢ 25¢

New Haven. 25¢ 25¢ 25¢ 25¢ 25¢

Saranac. 25¢ 25¢ 25¢ 25¢ 25¢

Champion. 25¢ 25¢ 25¢ 25¢ 25¢

Capwell. 25¢ 25¢ 25¢ 25¢ 25¢

Star. 25¢ 25¢ 25¢ 25¢ 25¢

Anchor. 25¢ 25¢ 25¢ 25¢ 25¢

Western. 25¢ 25¢ 25¢ 25¢ 25¢

Empire Bronzed. 14¢ #

Picture.

Brass Head, Sargent's list. 50¢10¢10¢

Brass Head, Combination list. 50¢10¢

Porcelain Head, Sargent's list. 50¢10¢10¢

Porcelain Head, Combination list. 40¢10¢

Niles' Patent. 40¢

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts.

Nuts, off list Dec. 13, 1889. Square. Hex.

Hot Pressed. 5.5¢ 6.10¢

Cold Punched. 6.10¢ 6.00¢

In lots less than 100 #, add 1/4¢; 1-10 boxes, add 1¢ to list.

Oakum.

Government. # 7 @ 7 1/4¢

U. S. Navy. # 6 @ 6 1/4¢

Navy. # 5 @ 5 1/4¢

Oilers.

Zinc and Tin. 65¢65¢10¢

Brass and Copper. 50¢50¢50¢10¢5¢

Malleable, Hammers Improved. No. 1.

\$3.00; No. 2, \$4.00; No. 3, \$4.40 # dos 10¢10¢5¢

Malleable, Hammers, Old Pattern, same list. 40¢

Prior's Pat. or "Paragon" Zinc. 60¢10¢10¢

World's Best, # gross, No. 1, \$12.00. No. 2, \$24.00; No. 3, \$36.00. 60¢10¢ Universal, # dos \$3.00. 30¢10¢ Domestic, # dos \$2.50. 25¢10¢ Champion # dos \$2.00. 20¢10¢

Packing, Steam.

Standard. 60¢5¢65¢

Extra. 60¢50¢55¢

N. Y. B. & P. Co., Standard. 40¢10¢50¢

N. Y. B. & P. Co., Empire. 60¢5¢65¢

N. Y. B. & P. Co., Salamander. # 65¢, 10¢15¢

Jenkins' Standard. # 80¢, 25¢25¢55¢

Miscellaneous.

American Packing. 10¢11¢

Russia Packing. 14¢ #

Italian Packing. 18¢14¢ #

Cotton Packing. 15¢17¢ #

Jute. 7¢6¢ #

Padlocks.—See Locks.

Pails.

Galvanized Iron.

Quarts 10 12 14

Hill's Light Weight, # dos. 2.75 3.00 3.25

Heavy Weight, # dos. 3.00 3.25 3.75

Whiting's. 2.75 3.00 3.25

Sidney Shepard & Co. 2.35 2.85 3.05

Iron Clad. 2.50 2.75 3.00

Fire Buckets. 2.75 3.25 3.50

Buckets, see Well Buckets.

Indurated Fibre Ware.—25¢

Star Pails, 12 qt. # dos \$6.00

Fire. # dos \$7.50

Standard Fibre Ware.

Plain. Deer'd

Water Pails, 12 qt., per doz. \$4.00 \$4.50

Dairy Pails, 14 qt., per doz. 4.50 5.00

Fibre Pails, No. 1, 12 qt. per doz. 4.50

Fibre Pails, No. 2, 14 qt. per doz. 5.00

Sugar Pails. 6.00

Horse Pails. 5.00

Bugby Pails. 4.00

Slop Jars (bal. trap). 8.00 9.00

Chamber Pails, 14-qt. 6.50 7.50

Pans.

Dripping.

Small sizes. # dos 6 1/4¢

Large sizes. # dos 5 1/4¢

Fry.

Standard list:

No. 0 1 2 3 4

dos. \$3.00 \$3.75 \$4.25 \$4.75 \$5.25

No. 5 6 7 8

dos. \$6.00 \$7.00 \$8.00 \$9.00

Polished, regular goods. 70¢10¢

Acme Fry Pans. 60¢10¢

Paper and Cloth.

Sand and Emery.

List April 19, 1889. 50¢50¢10¢

Sibley's Emery and Crocus Cloth. 30¢

Parers.

Apple.

Advance. # dos \$4.75

Bonanza. # dos 5.00

Champion. # dos 7.25

Daisy. # dos 4.00

Eureka, 1888. each 16.00

Family Bay State. # dos 12.00

Firewrite. # dos 5.00

Gem. # dos 5.25

Gold Medal. # dos 4.00

Ideal. # dos 4.00

Improved Bay State. # dos 27.00 @ 30.00

Little Star. # dos 4.50

Monarch. # dos 13.50

New Lightning. # dos 4.00

Orion. # dos 4.00

Penn. # dos 4.00

Perfection. # dos 4.00

Pomona. # dos 4.00

Rocking Table. # dos 6.00

Iron Planes.

Bailey's (Stanley R. & L. Co.). 40¢10¢40¢10¢

Miscellaneous Planes (Stanley R. & L. Co.). 20¢10¢20¢10¢10¢

Victor Planes (Stanley R. & L. Co.). 20¢10¢20¢10¢10¢

Steer's Iron Planes. 35¢35¢10¢

Merfien Mal Iron Co.'s. 40¢40¢10¢

Davies' Iron Planes. 40¢40¢10¢

Birmingham Plane Co. 50¢50¢10¢

Gage Tool Co.'s Self-Setting. 20¢10¢

Chaplin's Iron Planes. 40¢40¢10¢

Sargent's. 80¢10¢30¢10¢10¢

Standard Tool Co. 60¢50¢55¢

Plane Irons.

Butcher's. \$5.00 @ \$5.25 to 2

Buck Bros. 30¢

Auburn "Thistle. 35¢2¢

Ohio. 35¢2¢

Sandusky. 25¢

S. & I. J. White. 25¢

Plates.

Felloe. # dos 6¢ @ 6 1/4¢

Pliers and Nippers.

Button's Patent. 30¢10¢40¢

Hall's No. 2, 5 in. \$13.50; No. 4, 7 in. \$21.00 # dos 30¢10¢35¢

Humason & Beckley Mfg. Co. 50¢50¢10¢

Gas Pliers. 60¢

Eureka Pliers and Nippers. 40¢

Russell's Parallel. 25¢

P. S. & W. Cast Steel. 50¢

P. S. & W. Tinner's Cutting Nippers. 50¢

Carew's Pat. Wire Cutters. 20¢

Morrill's Parallel, # dos, \$13.00. 30¢5¢

Cronk's 8 in., \$15.00; 10 in. \$21.00. 40¢40¢5¢

Plumbs and Levels.

Regular list. 70¢10¢70¢10¢10¢

Disston's. 50¢

Pocket Levels. 70¢10¢70¢10¢10¢

Davis Iron Levels. 30¢

Davis' Inchometers. 10¢10¢

Poachers.

Egg.

Buffalo Steam Egg Poachers, # dos, No. 1, \$6.00; No. 2, \$8.00. 25¢

Pokes, Animal.

Bishop's I. X. L. # dos \$6.00

Bishop's O. K. # dos \$5.25

Bishop's Pioneer. # dos \$3.75

Bishop's American. # dos \$3.75

Police Goods.

R. I. Tool Co., Handcuffs, \$15.00 # dos 10¢

R. I. Tool Co., Leg Irons, \$25.00 # dos 10¢

Daley's Improved Handcuffs, 2 Hands. 25¢

Polished, # dos \$48.00; Nickeled, \$57.00; 3 Hands, Polished, # dos \$72.00; Nickeled, \$84.00. 25¢

J. P. Lovell's Police Goods. 25¢

Polish, Metal.

Prestoline. 30¢

Prestoline Paste. 35¢4¢

Gaston's Silver Compound. 35¢4¢

Polish, Stove.

Joseph Dixon's. # gro \$6.00, 10¢

Gem. # gro \$4.50, 10¢

Gold Medal. # gro \$6.00, 25¢

Mirror. # pro \$6.00, —

Lustro. # gro \$4.75

Ruby Sun, 3 gro lots. # gro \$3.75

Rising Sun, 3 gro lots. # gro \$5.50

Dixon's Plumbago. # # 8¢

Boynton's Noon Day, # gro 13.00

Parlor Fridge Stove Enamel. # gro 3 cans

Yates' Liquid, 2 3 5 10 gal. 8¢

Gal. \$0.90, 80 70 60

Yates Standard Paste Polish, 10-15 cans. # 15¢

Jet Black. # gro \$3.50

Japanese. # gro \$3.50

Fireside. # gro \$2.50

Diamond O. K. Enamel. # gro \$19.00

Bonnell's Liquid Stove Polish. # gro \$2.00

Bonnell's Paste Stove Polish. # gro \$6.00

Black Eagle Benzine Paste, 5 and 10 # cans. 12 1/2¢

Pumps.

Clifton, Best Makers. 60¢60¢10¢

Pitcher Spout, Best Makers. 67¢4¢70¢

Pitcher Spout, Cheaper Goods. 70¢70¢5¢

Punches.

Saddlers' or Drive, good, # dos. 60¢65¢

Bemis & Call Co.'s Cast Steel Drive. 50¢5¢

Bemis & Call Co.'s Springfield Socket. 50¢5¢

Spring, good quality. # dos \$2.50 @ 2.69

Spring, Leach's Pat. 15¢

Bemis & Call Co.'s Spring and Check. 40¢

Solid Tinner's P. S. & W. Co. # dos \$1.44, 55¢

Tinner's Hollow Punches P. S. & W. Co. 20¢25¢

Rice Hand Punches. 15¢

Avery's Revolving. 40¢

Avery's Saw-Set and Punch. See Saw Sets.

Rail.

Sliding Door, Wrt Brass, # 35¢. 15¢

Sliding Door, Bronze Wrt Iron. # ft. 7¢

Sliding Door, Iron, Painted, # foot 4¢, 40¢

Barn Door, Light In. # 2 1/2 # 3 1/2

Per 100 feet. \$2.00 2.50 3.10, 10¢

B. D. for N. E. Hangers. Small. Med. Large.

Per 100 feet. \$2.15 2.70 3.25, net

Terry's Steel Rail, # foot. 4¢

Victor Track Rail, 7¢ # foot. 50¢25¢

Carrier Steel Rail, # foot. 4¢

Moore's Wrought Iron. 25¢

tkins' Circular Shingle and Heading 50¢
 Atkins' Silver Steel Diamond X Cuts 50¢
 Atkins' Special Steel Dexter X Cuts 50¢
 Atkins' Special Steel Diamond X Cuts 50¢
 Atkins' Champion and Electric Tooth X Cuts 50¢
 Atkins' Hollow Back X Cuts 50¢
 Atkins' Mulay, Mill and Drag 40¢
 Atkins' One-Man Saw, with handles, 50¢
 W. M. & C. Hand 30¢
 W. M. & C. Champion X Cuts, Regular 30¢
 W. M. & C. X Cuts, Thin Back 30¢
 Peace Circular and Mill 45¢
 Peace Hand Panel and Rip 25¢
 Peace Cross Cuts 45¢
 Richardson's Circular and Mill 45¢
 Richardson's X Cuts 45¢
 Richardson's Hand, &c. 25¢
 Hack Saws—
 Griffin's, complete 40¢
 Griffin's Hack Saw, Blades 40¢
 Star Hack Saws and Blades 25¢
 Eureka and Crescent 25¢
 Scroll—
 Lester, complete, \$10.00 25¢
 Rogers, complete, \$4.00 25¢
 Barnes' Builders' and Cabinet Makers' 15¢
 Barnes' Scroll Saw Blades 35¢
 Saw Frames—See Frames, Saw.
 Saw Sets—See Sets, Saw.
 Saw Tools—See Tools, Saw.
 Scales—
 Hatch, Counter, No. 171, good quality 25¢
 Hatch, Tea, No. 161 25¢
 Union Platform, Plain 25¢
 Union Platform, Striped 25¢
 Chatillon's Grocers' Trip Scales 50¢
 Chatillon's Eureka 25¢
 Chatillon's Favorite 40¢
 Family Turnbills 30¢
 Riehle Bros.' Platform 40¢
 Scale Beams—See Beams, Scale.
 Scissors, Fluting 45¢
 Scrapers—
 Adjustable Box Scraper (S. R. & L. Co.) 50¢
 Box, 1 Handle 25¢
 Box, 2 Handle 25¢
 Defiance Box and Ship 25¢
 Foot 50¢
 Ship, Common 25¢
 Ship, R. I. Tool Co. 10¢
 Screen Window and Door Frames—See Frames.
 Screw Drivers—See Drivers, Screw.
 Screws—
 Bench and Hand—
 Bench, Iron 55¢
 Bench, Wood, Beech 25¢
 Bench, Wood, Hickory 20¢
 Hand, Wood 25¢
 Lag, Blunt Point, list Jan. 1, 1890 75¢
 Coach and Lug, Gimlet Point, list Jan. 1, 1890 75¢
 Bed 25¢
 Hand Rail, Sargent's 65¢
 Hand Rail, H. & B. Mfg. Co. 70¢
 Hand Rail, Am. Screw Co. 75¢
 Jack Screws, Millers Falls list 50¢
 Jack Screws, P. S. & W. 35¢
 Jack Screws, Sargent 60¢
 Jack Screws, Stearns 40¢
 Cork—
 Humason & Beckley Mfg. Co. 40¢
 Williamson's 55¢
 Howe Bros. & Hulbert 35¢
 Machine—
 Flat Head, Iron 55¢
 Round Head, Iron 50¢
 Wood—
 List March 1, 1890.
 Flat Head Iron 50¢
 Round Head Iron 40¢
 Flat Head Iron 45¢
 Round Head Iron 45¢
 Flat Head Bronze 45¢
 Round Head Bronze 45¢
 Rogers' Drive Screws 65¢
 Scroll Saws—See Saws, Scroll.
 Scythe Snaths—See Snaths, Scythe.
 Sets.
 Aul and Tool.
 Aiken's Sets, Aul and Tools, No. 20, 25¢
 Fray's Adj. Tool Hds., No. 1, 25¢
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Wire Brads & Nails, see Nails, Wire.	
Steel-Wire Brads, R. & E. Mfg. Co.'s	50¢10¢
list.....	50¢10¢
Tap Borers —See Borers, Tap.	
Tapes, Measuring —	
American.....	33¢40¢33¢45¢
Spring.....	40¢
Chesterman's, Regular list.....	33¢40¢
Thermometers —	
Tin Case.....	80¢90¢10¢
Thimble Skelns —See Skelns.	
Ties, Bale —Steel	
Standard Wire, list.....	50¢10¢5¢
Tinners' Shears, &c. —See Shears, Tinners', &c.	
Tinware —	
Stamped, Japanned and Piced, list	
Jan. 20 1887.....	70¢10¢70¢10¢5¢
Tire Benders, Upsetters, &c. —	
See Benders and Upsetters, Tire.	
Tools.	
Coopers'—	
Bradley's.....	20¢
Barton's.....	20¢20¢5¢
L. & J. White.....	20¢5¢
Albertson Mfg. Co.....	20¢5¢
Beatty's.....	30¢
Sandusky Tool Co.....	30¢30¢5¢
Shaves, Cincinnati Tool Co.....	20¢
Lumber —	
Ring Peavies, "Blue Line".....	20¢20¢
Ring Peavies, Common.....	20¢18¢
Steel Socket Peavies.....	20¢21¢
Mail, Iron Socket Peavies.....	20¢19¢
Cant Hooks, "Blue Line".....	20¢18¢
Cant Hooks, Common Finish.....	20¢14¢
Cant Hooks, Mail, Socket Clasp, "Blue	
Line" Finish.....	16¢10¢
Cant Hooks, Mail, Socket Clasp, Com-	
mon Finish.....	20¢14¢5¢
Cant Hooks, Clip Clasp, "Blue Line"	
Finish.....	20¢14¢
Cant Hooks, Clip Clasp, Common Fin-	
ish.....	20¢12¢
Hand Spikes.....	20¢6¢15¢; 8¢; 12¢
Pike Poles, Pike & Hook, 12 ft.,	
11.50; 14 ft., 12.50; 16 ft., 14.50;	
18 ft., 17.50; 20 ft., 21.50.	
Pike Poles, Pike only, 12 ft.,	
10.00; 14 ft., 11.00; 16 ft., 12.00; 18	
ft., 13.00; 20 ft., 15.00.	
Pike Poles, not ironed, 12 ft.,	
6.00; 14 ft., 7.00; 16 ft., 8.00; 18	
ft., 9.00; 20 ft., 10.00.	
Settling Poles, 12 ft., 12.00; 14	
ft., 13.00; 16 ft., 14.00.	
Swamp Hooks.....	20¢18¢
Save.	
Atkins' Perfection.....	20¢12¢
Atkins' Excelsior.....	20¢10¢
Atkins' Giant.....	20¢10¢
Tobacco Cutters —See Cutters, To-	
bacco.	
Transom Lifters —See Lifters, Transom.	
Traps —	
Game—	
Newhouse.....	40¢40¢5¢
Onelia Pattern.....	70¢10¢
Game, Blake's Patent.....	40¢10¢5¢

Mouse and Rat —	
Mouse Wood Choker, 7 dos holes, 11¢12¢	
Mouse, Round Wire.....	20¢15¢, 10¢
Mouse, Cage, Wire.....	20¢25¢, 10¢
Mouse, Catch-em-alive.....	20¢25¢, 15¢
Mouse, Bonanza.....	20¢10¢, 10¢
Mouse Delusion.....	20¢10¢, 10¢
Rat, Decoy.....	20¢10¢, 10¢
Ideal.....	20¢10¢, 10¢
Cyclone.....	20¢10¢, 10¢
Hotchkiss Metallic Mouse, 5-hole traps,	
7 dos, 90¢; in full cases, 7 dos, 75¢	
Hotchkiss Imp. Rat Killer.....	20¢15¢
Hotchkiss New Rat Killer.....	20¢15¢
Schuyler's Rat Killer.....	20¢15¢
Triers —	
Butter and cheese.....	25¢
Trimmers, Spoke.	
Bonney's.....	20¢10¢, 50¢
Stearns'.....	20¢10¢
Ives, No. 1, 15.00; No. 2, 12.00, 7 dos.	
Douglas'.....	20¢10¢, 20¢
Cincinnati.....	25¢
Trawls —	
Lothrop's Brick and Plastering.....	20¢10¢5¢35¢
Reed's Brick and Plastering.....	15¢
Diston's Br'k and Plastering.....	25¢
Peace's Plastering.....	25¢
Clement & Maynard's.....	20¢
Rose's Brick.....	15¢20¢
Brace's Brick.....	25¢
Worral's Brick and Plastering.....	20¢
Garden.....	70¢
Trucks, Warehouse, &c. —	
R. & L. Block Co.'s list, '82.....	40¢
Tubes, Boiler —	
See Pipe.	
Twine —	
Flax Twine.....	BC. B.
No. 9, 10 and 11 Balls.....	25¢ 34¢
No. 12, 14 and 16 Balls.....	25¢ 33¢
No. 18, 20 and 22 Balls.....	22¢ 32¢
No. 24, 26 and 28 Balls.....	22¢ 32¢
No. 30, 32 and 34 Balls.....	20¢ 31¢
No. 36, 38 and 40 Balls.....	18¢ 30¢
Chalk Line, Cotton, 1/2 in. Balls.....	25¢
Mason Line, Linen, 1/2 in. Balls.....	55¢
2-Ply Hemp, 1/2 and 3/4 in. Balls (Spring	
Twine).....	15¢4¢
3-Ply Hemp, 1 in. Balls.....	16¢4¢
3-Ply Hemp, 1 1/2 in. Balls.....	15¢10¢
Cotton Wrapping, 5 Balls to do.....	15¢16¢
2, 3, 4 and 5-Ply Jute, 1/2 in. Balls.....	10¢
Wool.....	6¢10¢
Paper.....	13¢14¢
Cotton Mops, 4, 9, 12 and 15 in. to do.....	18¢
Vises —	
Solid Box.....	50¢10¢50¢10¢5¢
Parallel.....	
Fisher's Norris Double Screw.....	15¢10¢
Stephens'.....	25¢30¢
Parker's.....	20¢25¢
Wilson's.....	55¢
Howard's.....	40¢
Bonney's.....	40¢10¢
Miller's Falls.....	40¢10¢10¢
Trenton.....	40¢10¢10¢
Merrill's.....	15¢20¢
Sargent's.....	60¢10¢10¢
Backus and Union.....	40¢
Double Screw Leg.....	15¢10¢
Prentiss.....	30¢25¢
Simpson's Adjustable.....	40¢
Moore's.....	40¢
Saw Vises —	
Bonney's, Nos. 2 & 3, 15.00.....	40¢10¢
Stearns'.....	35¢10¢35¢10¢10¢
Stearns' Silent Saw Vises.....	35¢10¢35¢

Sargent's.....	60¢10¢
Hopkins.....	20¢17.50, 10¢
Reading.....	40¢10¢
Wentworth.....	20¢10¢
Combination Hand Vises.....	20¢42.00
Cowell Hand Vises.....	20¢
Bauer's Pipe Vises.....	10¢
Cincinnati.....	25¢10¢
Wagon Boxes —See Boxes, Wagon.	
Washer Cutters —See Cutters, Washer.	
Wagon Jacks —See Jacks, Wagon.	
Ware, Hollow, Enameled, &c.	
Cast Iron, Hollow—	
Stove Hollow-Ware—	
Ground.....	55¢5¢60¢5¢
Unground.....	65¢10¢60¢10¢5¢
White Enameled-Ware—	
Maslin Kettles.....	60¢10¢10¢
Boilers and Saucepans.....	40¢5¢
Tinned Boilers and Saucepans.....	40¢5¢
Rustless Hollow-Ware.....	50¢50¢5¢
Gray Enameled-Ware—	
Stove.....	50¢
Maslin Kettles.....	60¢10¢10¢
Boilers and Saucepans.....	40¢5¢
Enameled —	
Agate and Granite Ware, list Jan. 1,	
1889.....	33¢42¢10¢
Ironclad Enameled Ware.....	dis 33¢42¢10¢
Kettles —	
Galvanized Tea-Kettles—	
Inch.....	50¢ 60¢ 65¢ 75¢
Each.....	50¢ 60¢ 65¢ 75¢
Standard Fiber —	
Per Dozen.	
Plain, Dec'd	
Wash-Basins, 10 1/2 in.....	\$2.00 \$2.25
Wash-Basins, 12 in.....	2.25 2.75
Keelers, 11 1/2 in.....	4.00
Cuspidors.....	8.00
Spittoons, "Palais," 8 in.....	4.00
Peck Measure.....	4.00
Half-peck Measure.....	3.60
See also Falls.	
Indurated Fiber —25¢	
Spittoons, No. 2, 7 dos.....	\$9.00
Basins, Ringed, 7 dos, No. 2, \$4.80;	
No. 3.....	\$4.20
Wash-tubs, Nested, Nos. 0, 1, 2 and 3 (4	
pieces), 7 nest.....	\$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4	
pieces), 7 nest.....	\$3.70
Butter Bowls 15, 17 and 19-inch (3	
pieces), 7 nest.....	\$2.25
Liquid Measures, pt., qt., 2 qt. and fun-	
nel (4 pieces), 7 set.....	\$3.00
Dry Measure, 1, 2, 4, 8 and 16 qts (5	
pieces), 7 set.....	\$3.00
See also Falls.	
Silver Plated, Hollow —	
4 mo. or 5 1/2 cash in 30 days.	
Reed's.....	
Meriden Britannia Co.....	40¢5¢
Simpson, Hall, Miller & Co.....	40¢5¢
Rogers & Brother.....	40¢5¢
Hartford Silver Plate Co.....	40¢5¢
William Rogers Mfg. Co.....	40¢5¢
Washers —	
Size.....	1/2 5-16 3/4 1/2 3/4 1/2 1
Wash.....	5¢ 5¢ 5¢ 5¢ 5¢ 5¢ 5¢
In lots less than 200, 7 dos, add 1/4¢, 5-2	
boxes 1¢ to list.	
Wedges —	
Iron.....	7¢ 3¢4¢
Steel.....	7¢ 3¢4¢
Weights, Sash —	
Solid Eyes.....	7¢ ton \$18¢419¢

Well Buckets, Galvanized —See Buckets, Well, Galvanized.	
Wheels, Well.	
8 in., \$2.25; 10 in., \$2.70; 12 in., \$3.25	
Wire and Wire Goods —	
Iron —	
Market.	
Br. & Ann., Nos. 0 to 13.....	73¢1/2
Cop'd, Nos. 0 to 13.....	70¢
Galv., Nos. 0 to 13.....	62¢1/2
Tin'd, Tinned list Nos. 0 to 13.....	62¢1/2
Stone.	
Br. & Ann'd, Nos. 16 to 18.....	72¢1/2
Bright and Ann'd, Nos. 19 to 26.....	75¢
Br. & Ann'd, Nos. 27 to 36.....	77¢1/2
Tinned.	
Tinned Broom Wire, 18 to 21, 7 dos.....	54¢
Galvanized Fence, Nos. 3 and 9.....	65¢
Annealed Fence, Nos. 8 and 9.....	75¢
Annealed Grade, Nos. 10 to 14.....	75¢
Brass, list Jan. 18, 1884.....	25¢
Copper, list Jan. 18, 1884.....	25¢
Barb Fence.....	See Trade Report
Annealed Wire on Spools.....	40¢
Mail's Steel and Tin'd on Spools.....	40¢
Mail's Brass and Cop. on Spools.....	40¢
Cast Steel Wire.....	50¢
Stub's Steel Wire.....	\$6.00 to 2, 30¢
Steel Music Wire, Nos. 12 to 30.....	55¢ 7¢
Picture Wire.....	New list 50¢
Wire Clothes Lines, see Lines.	
Bright Wire Goods —	
Standard list.....	85¢
Wire Cloth and Netting.	
Painted Screen Cloth, good quality,	
100 sq. ft., \$1.50 @ \$1.75	
Galvanized Wire Netting.....	70¢10¢75¢
Wire Rope —See Rope, Wire.	
Wrenches —	
American Adjustable.....	40¢
Baxter's Adjustable "S".....	40¢10¢50¢
Baxter's Diagonal.....	40¢10¢50¢
Cox's "Mechanics".....	50¢10¢
Girard Standard.....	65¢10¢
Lamson & Sessions' Engineers'.....	60¢10¢
Lamson & Sessions' Standard.....	70¢10¢
P. S. & W. Agricultural.....	75¢
Girard Agricultural.....	75¢
Lamson & Sessions' Agric'l.....	75¢
Bemis & Call's	
Pat. Combination.....	35¢
Merrick's Pattern.....	25¢
Brigg's Pattern.....	40¢25¢
Cylinder or Gas Pipe.....	40¢10¢
No. 3 Pipe.....	40¢10¢
Alken's Pocket (Bright).....	\$6.00, 50¢10¢
The Favorite Pocket.....	20¢40¢, 40¢
Webster's Pat. Combination.....	25¢
Boardman's.....	20¢10¢
Always Ready.....	55¢
Aligator.....	50¢
Donohue's Engineer.....	20¢10¢
Acme, Bright.....	60¢25¢
Acme, Nickel.....	50¢25¢
Walker's.....	55¢25¢
Diamond Steel.....	25¢10¢
Cincinnati Brace Wrenches.....	25¢10¢
Taft's Vise Wrench.....	55¢10¢25¢
Wringers, Clothes —	
List March 11, 1889, 25¢ cash.	
Wrought Goods —	
Staples, Hooks, &c., list Jan. 12, 1889,	
80¢15¢95¢	

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.	
Linseed, City, raw, per gal.	62 @ 64
Linseed, City, boiled.....	64 @ 66
Linseed, Western, raw.....	59 @ 60
Lard, City, Extra Winter.....	51 @ 52
Lard, City, Prime.....	49 @ 50
Lard, City, Extra No. 1.....	45 @ 46
Lard, City, No. 1.....	42 @ 43
Lard, Western, prime.....	49 @ 50
Cotton-seed, Crude, prime.....	31 @ 32
Cotton-seed, Crude, off	
grades.....	28 @ 30
Cotton-seed, Summer Yel-	
low, prime.....	30 @ 36
Cottonseed, Summer Yel-	
low, off grades.....	31 @ 33 1/2
Sperm, Crude.....	65 @ 66
Sperm, Natural Spring.....	67 @ 68
Sperm, Bleached Spring.....	72 @ 74
Sperm, Natural Winter.....	74 @ 77
Sperm, Bleached Winter.....	79 @ 82
Whale, Crude.....	40 @ 46
Whale, Natural Winter.....	40 @ 46
Whale, Bleached Winter.....	51 @ 52
Whale, Extra Bleached.....	54 @ 55
Sea Elephant, Bleached	
Winter.....	60 @ 62
Menhaden, Crude, Sound.....	22 1/2 @ 23 1/2
Menhaden, Crude, Southern	
Men den, Light Pressed.....	26 @ 28
Menhaden, Bleached Water.....	32 @ 33
Menhaden, Extra Bleached.....	35 @ 36
Tallow, City, prime.....	42 @ 43
Tallow, Western, prime.....	42 @ 43
Cocanut Ceylon.....	64 @ 65
Cocanut, Cochln.....	64 @ 65
Cod, Domestic.....	32 @ 34
Cod, Foreign.....	33 @ 34
Red Elaine.....	31 @ 34
Red Saponified.....	44 @ 45 1/2
Bank.....	25 @ 27
Straits.....	27 @ 28
Oliva, Italian, bbls.....	81 @ 83
Neatsfoot, prime.....	62 1/2 @ 73
Palm, prime, Lagos.....	54 @ 64
Mineral Oils.	
Black, 20 gravity, 25 @ 30	
cold test.....	8 @ 19
Black, 20 gravity, 15 cold	
test.....	8 1/2 @ 9 1/2
Black, 20 gravity, 10 cold	
test.....	8 @ 9
Cylinder, light, filtered.....	9 @ 9

Cylinder, dark, filtered.....	14 @ 20
Cylinder, dark, st'm refined	
Paraffine, 23 1/2 @ 24 gravity.....	10 @ 18
Paraffine, 25 gravity.....	11 @ 12
Paraffine, 28 gravity.....	10 @ 11
Paraffine, red, 21 @ 22 grty.....	8 1/2 @ 9
Paraffine, red, 23 1/2 @ 23 grty.....	14 @ 14 1/2
Paraffine, red, 23 1/2 @ 23 grty.....	12 @ 13
Paints and Colors.	
Barytes, Prime White —	
7 ton, \$22.00 @ \$25.50	
Barytes, Amer. refined.....	20.00 @
Barytes, Amer. No. 1.....	15.00 @
Barytes, Amer. No. 2.....	16.00 @
Barytes, Amer., off-color.....	13.00 @ 15.00
Blue, Celestial.....	7 @ 5 1/2 @ 7 1/2
Blue, Chinese.....	45 @ 50
Blue, Prussian.....	20 @ 35
Blue, Ultramarine.....	7 @ 25
Brown, Spanish.....	1 1/2 @ 1
Brown, Vandyke, English.....	3 @ 3 1/2
Black, American Drop.....	8 @ 10
Black, English Drop.....	12 @ 14
Black, Frankfurt, Drop.....	5 @ 18
Black, Lamp, common.....	12 @ 18
Black, Lamp, medium.....	12 @ 25
Black, Lamp, prime.....	27 @ 33
Carmin, No. 40, in bulk.....	3.10 @
Carmin, No. 40, in boxes	
or barrels.....	3.20 @
Carmin, No. 40, in ounce	
bottles.....	12.20 @
Chalk, in bulk.....	2.00 @
Chalk, in bbls.....	7 @ 30
China Clay, English.....	14 1/2 @ 15
China Clay, Southern.....	10.00 @ 11.50
Cobalt Oxide, prep'd.....	2.90 @
Cobalt Oxide, black.....	2.00 @
Cobalt, Oxide, black.....	100 lb 2.60 @
Crocus Martius, Engl. 7 dos.....	14 1/2 @ 24
Crocus, American.....	14 1/2 @ 24
Green, Paris, in bulk.....	14 @ 14 1/2
Green, Paris, 170 @ 175 lb	
kegs.....	14 1/2 @ 15
Green, Paris, small pack.....	16 @ 21
Green, Chrome, ordinary.....	8 @ 13
Green, Chrome, pure.....	23 @ 25
Lead, Eng. H.B. white.....	9 @ 10
Lead, Ann. White, dry or in oil.....	9 @ 10
Segs, lots less than 1000 lb.....	9 @ 10
Kegs, lots 1000 lb to 5 tons.....	9 @ 10

Kegs, lots 5 tons to 12 tons.....	9 @ 10
Kegs, lots 12 tons and over.....	9 @ 10
Lead, White, in oil, 25 lb tin	
pails, add to keg price.....	9 @ 10
Lead, White, in oil, 12 1/2 lb tin	
pails, add to keg price.....	9 @ 10
Lead, White, in oil, 1 to 5 lb as-	
sorted tins, add to keg price.....	9 @ 10
Lead, Red, bbls. and 1/2 bbls.....	6 @ 6 1/2
Lead, Red, kegs.....	6 1/2 @ 7
Litharge, kegs.....	6 1/2 @ 7
Litharge, bbls. and 1/2 bbls.....	6 @ 6 1/2
TERMS, &c. —Lead and Litharge.—On	
lots of 1000 lb or over, 60 days' time or	
2 1/2 % discount for cash if paid, within 15	
days of date of invoice.	
Ocher, Rochelle.....	1.35 @ 1 1/2
Ocher, French Washed.....	1 1/2 @ 2 1/2

